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ABSTRACT

As part of the school reform legislation of 1985, the Illinois State Board of Education established State Goals for Learning in six fundamental learning areas: language arts, mathematics, science, social science, fine arts, and physical development and health. The next step is to develop standards that will more clearly define the knowledge and skills that students should have as a result of their education. The Illinois Academic Standards Project was launched to update the State Goals for Learning and clarify the knowledge and skills necessary to meet each goal. This volume, the first in a series of four, presents the discussion drafts that are a product of work by 200 Illinois teachers, administrators, parents, higher education faculty, and business representatives. The volume proposes guidelines for English language arts and mathematics and the proposed benchmarks to measure progress toward each state goal for these areas; and presents the summary charts for each of the six fundamental learning areas: English language arts, mathematics, science, social science, fine arts, physical development and health, and foreign languages. Appendices contain a chart that compares 1985 State Goals for Learning with the 1996 draft goals, a list of participants, and two feedback instruments. (Contains 93 references.) (LMI)

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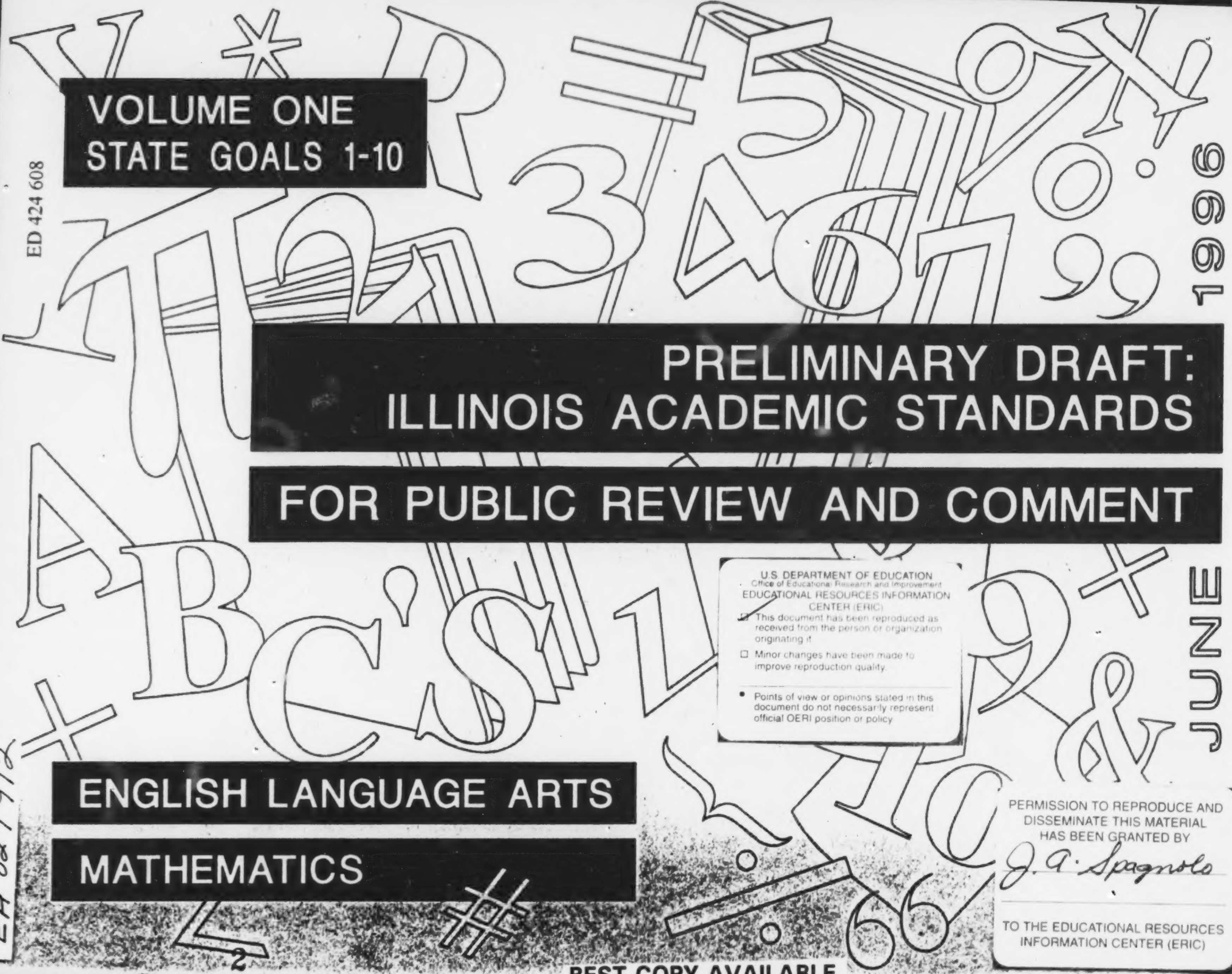

## VOLUME ONE
## STATE GOALS 1-10

# PRELIMINARY DRAFT: ILLINOIS ACADEMIC STANDARDS

## FOR PUBLIC REVIEW AND COMMENT

JUNE 1996

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## ENGLISH LANGUAGE ARTS

## MATHEMATICS

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# PRELIMINARY DRAFT: ILLINOIS ACADEMIC STANDARDS

## FOR PUBLIC REVIEW AND COMMENT

## ENGLISH LANGUAGE ARTS

## MATHEMATICS

VOLUME ONE
STATE GOALS 1-10

JUNE 1996

***Please duplicate as needed.***

## A Message to Illinois Citizens:

June, 1996

Improving the quality of public education must be a shared priority. Ensuring that our children acquire the knowledge and skills they will need to be successful in their education, career and community life requires a joint effort of educators and school board members, as well as business, community and civic representatives. In order for such cooperation to take place, the intended results of schooling must be defined and communicated in ways that all participants can understand and use.

This discussion document represents a year of work on the part of over 200 educators and citizens. The document proposes the essential academic knowledge and skills all students should learn as a result of their public education. Once finalized, the document will serve as a guide to help our children acquire this essential learning. It will also serve as a basis for communicating the expected results of Illinois schooling to our residents and the rest of the nation.

Please make time to review this work in progress. Your contribution is crucial to the success of this effort. Become an active participant in the ongoing process of developing a set of academic standards that will focus the work of schools as they prepare our children for the future. We urge you to review this document and to submit one or both of the feedback instruments/comment forms in Appendices D and E to the Illinois State Board of Education.

Questions concerning this draft may be directed to your Regional Office of Education or to the Illinois State Board of Education at 1-800-387-1470 or (rschaljo@spr6.isbe.state.il.us).

We look forward to your comments.

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# INTRODUCTION

As part of the school reform legislation of 1985, the State Board of Education established State Goals for Learning in six fundamental learning areas: language arts, mathematics, science, social science, fine arts, and physical development and health. While these broad statements of goals and objectives have been helpful to schools over the past 10 years, the next step is to develop standards that will more clearly define the knowledge and skills that students should have as a result of their education.

The Illinois Academic Standards Project was launched to update the State Goals for Learning and clarify the knowledge and skills necessary to meet each goal. The discussion drafts presented here are the result of more than a year of work by 200 Illinois teachers, administrators, parents, higher education faculty and business representatives. Of the four volumes in the series, three cover the six fundamental learning areas: **Volume One** - English Language Arts (reading and writing) and Mathematics, **Volume Two** - Science and Social Science, and **Volume Three** - Fine Arts and Physical Development and Health. **Volume Four** addresses Foreign Languages, which is not one of the fundamental learning areas identified in the School Code, but is included as a resource for foreign language programs.

The standards are being released as a discussion draft for review by all Illinois citizens. Through November 1996, individuals and groups will have opportunities to comment on the standards and make suggestions. The purpose of seeking public comment is to come to agreement upon a set of rigorous academic standards for Illinois students.

Once the standards are complete, state assessments will be improved to more accurately measure student achievement at designated grade levels. In addition, the academic standards are expected to

- clarify the intended results of schooling for all audiences including parents, students and the community;
- provide high academic standards and expectations for student learning across the state;
- ensure continuity for students who move from one district to another; and
- create a clear set of expectations for student performance that can be assessed at both state and local levels, as well as provide for individual student progress reporting.

The goals, academic standards and learning benchmarks may be adapted and modified to meet individual student needs and learning styles to maximize the number of students meeting and exceeding the learning expectations these standards represent.

These documents are works in progress that are meant to provide the basis for public discussion about Illinois education and our expectations for student achievement. We encourage your suggestions and ideas for improvement.

Academic standards such as these describe what children should learn, not how they should be taught. Matters such as instructional techniques and materials are left for local communities and schools to determine.

The draft Illinois goals, academic standards and learning benchmarks are a work in progress. This discussion draft has been distributed widely throughout the state for review by all who are interested. Your comments and discussion are welcomed and encouraged. With your help, we can improve our schools, and the quality of education our children receive, helping them to meet the challenges ahead.

## CRITERIA FOR STANDARDS

To assure clarity and effectiveness, the teams drafting the goals and academic standards addressed the following criteria:

- The standards must be clear and meaningful to students, parents, educators, business representatives and the community at large.
- The standards should include an appropriate combination of knowledge and skills, not just facts alone or skills alone.
- The standards should build upon and go beyond the basics within each of the academic disciplines.
- The standards should be specific enough to convey what students should learn, but broad enough to allow for a variety of approaches to teaching, curriculum, course design and assessment.
- The standards should be specific enough to be used in assessing progress and improving students' learning.

## DEFINITIONS OF TERMS

This document is arranged in a logical sequence, giving increasing detail on what students should learn and be able to do. There are several terms used throughout.

**LEARNING AREA:** A learning area is an academic subject or discipline. The learning areas addressed by the writing teams are English Language Arts, Mathematics, Science, Social Science, Physical Development and Health and Fine Arts. A supplementary draft of advisory goals and standards for Foreign Languages is also being distributed.

**APPLICATIONS OF LEARNING:** Applications of learning are significant methods of learning and using knowledge which cross academic disciplines. The ability to use these skills will greatly influence students' success later in life.

The five applications of learning are explained below:

- **Solving Problems** - Problem solving is a key mechanism in which students learn to investigate problems and to formulate and propose solutions supported by reason and evidence.
- **Communicating** - Understanding lessons is only the beginning of education. Students also must be able to express and receive information and ideas accurately and clearly in oral and written forms. In fact, communication reinforces learned lessons, helping students to use facts and information to build further knowledge.
- **Using Technology** - Technology, particularly telecommunications and computer technology, puts a wealth of information and expertise at students' fingertips. Skilled use of technology creates a gateway to relevant, up-to-date information well beyond the walls of the classroom.
- **Working on Teams** - Learning is an intensely individual activity, but students also need to know how to contribute as members of teams or work groups. This aspect of learning is essential to adult life.
- **Making Academic Connections** - Every subject is related in some fashion to others. Students must learn to place information within a larger setting—to see the connections among lessons, subjects and everyday life.

**GOAL:** A goal is a broad statement of knowledge and/or skill to be attained within a learning area. Goals organize subject matter within learning areas. Each goal in this draft has an explanation of why it is important and how it relates to life beyond school. **A comparison of the proposed goals with those adopted in 1985 appears in Appendix A.**

**ACADEMIC STANDARD:** An academic standard is a specific statement of knowledge and/or skills within a goal. Academic standards clearly define the learning needed to achieve a goal. They state specifically what students should know and be able to do as a result of their education.

**LEARNING BENCHMARKS:** Learning benchmarks are progress indicators for measuring students' achievement of an academic standard. The benchmark levels are early elementary school, late elementary school, middle school (junior high school), early high school and late high school.

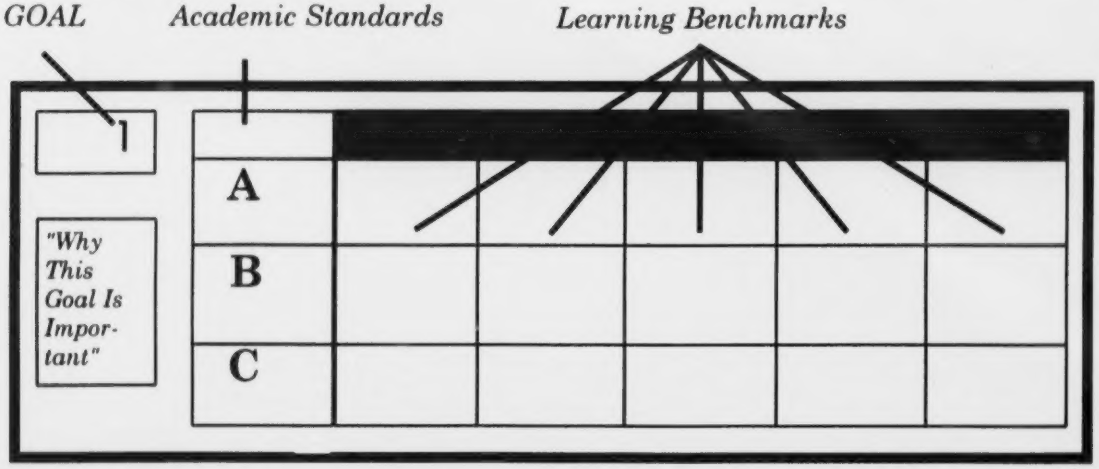
Learning benchmarks also can be seen as bridges between the stated standards and the measurements that will be used to determine achievement. Learning benchmarks are cumulative, more complex and rigorous from one level to the next. In elementary and middle school, learning benchmarks relate to basic skills—reading comprehension, grammar, writing skills, computation (addition, subtraction, multiplication and division) and others. In early high school, they define the essential knowledge and skills that all students are expected to have. In late high school, learning benchmarks reflect the fact that students have begun to specialize in their studies and career development.

## FORMAT

The format for each learning area is displayed in the following parts beginning on page 1.

- An introductory section explaining how the draft goals, academic standards and learning benchmarks were developed, the importance of the learning area, an overview of the main ideas embodied in the goals and standards, and what students will gain through their studies in this learning area.
- A discussion of Applications of Learning relevant to this discipline, in which specific examples of how skills of solving problems, communicating, using technology, working on teams and making academic connections can be achieved through study in this learning area.
- A summary of the goals and academic standards for the learning area on one page so that students, parents and educators can get a picture of the entire learning area "at a glance."
- A table of the academic standards and learning benchmarks for each goal, showing in detail why each goal is important for students to learn, the standards that further define each goal, and the learning benchmarks that will define expected student progress toward achieving each standard.

***The diagram below shows how the goals, academic standards and learning benchmarks are displayed in the draft document.***



**SUMMARY CHART**

# ENGLISH LANGUAGE ARTS

**The following is a summary chart showing all goals and academic standards for all learning areas.**

Students need knowledge and skills in English language arts to open the doors to learning in all subject areas, to achieve success in the workplace and to be well-informed, productive citizens. English language arts include the basic communication skills of reading, writing, speaking and listening.

Students who achieve these skills will be able to find and use information from many sources, read and understand a broad range of written materials, and write for a variety of purposes and audiences.

*As a result of their schooling, students will be able to:*

**PROPOSED 1996 STATE GOAL**

**1** **Read with understanding and fluency.**

**ACADEMIC STANDARDS FOR GOAL 1**

A. Apply word analysis and vocabulary skills to comprehend text.
B. Apply reading strategies to improve fluency and understanding.
C. Demonstrate comprehension of a broad range of reading materials.

**PROPOSED 1996 STATE GOAL**

**2** **Understand the expressed meaning in literature representative of various societies, eras and ideas.**

**ACADEMIC STANDARDS FOR GOAL 2**

A. Demonstrate an understanding of literary elements and techniques.
B. Explain, analyze and interpret the expressed meaning in literature representing various societies, eras and ideas.

**PROPOSED 1996 STATE GOAL**

**3** **Write to communicate for a variety of purposes.**

**ACADEMIC STANDARDS FOR GOAL 3**

A. Use correct grammar, spelling, punctuation, capitalization and sentence structure.
B. Compose well-organized and coherent writing for specific purposes and audiences.
C. Communicate ideas in writing to accomplish a variety of purposes.

**PROPOSED 1996 STATE GOAL**

**4** **Listen and speak effectively in a variety of situations.**

**ACADEMIC STANDARDS FOR GOAL 4**

A. Listen effectively in formal and informal situations.
B. Speak effectively using language appropriate to the situation and audience.

**PROPOSED 1996 STATE GOAL**

**5** **Use reading, writing, listening and speaking skills to research and apply information for specific purposes.**

**ACADEMIC STANDARDS FOR GOAL 5**

A. Locate, acquire and organize information from various sources to answer questions and solve problems.
B. Analyze and evaluate information acquired from various sources.
C. Apply acquired information, concepts and ideas.

SUMMARY CHART

# MATHEMATICS

Mathematics is used to identify, describe and investigate the patterns and challenges of everyday living. It helps us understand past events and predict and prepare for events to come. The study of mathematics includes arithmetic, geometry, algebra, trigonometry, statistics and other fields.

Students meeting these standards will understand how numbers are used and be able to use words and numbers to solve problems. They will be able to investigate, predict and reason using a variety of methods to solve a range of problems.

*As a result of their schooling, students will be able to:*

## PROPOSED 1996 STATE GOAL

**6** **Demonstrate a knowledge and sense of numbers and their representations, including basic operations (addition, subtraction, multiplication, division), ratios and proportions, by using multiple ways of obtaining exact values and estimates to understand patterns involving numbers and their applications.**

### ACADEMIC STANDARDS FOR GOAL 6

A. Demonstrate knowledge and use of numbers and their relations and representations in a broad range of settings from theoretical to practical.

B. Investigate, represent and solve problems using number facts, operations (addition, subtraction, multiplication, division), algorithms and relationships.

C. Solve problems using multiple approaches to computation including estimation, mental mathematics, paper-and-pencil methods and technology.

D. Solve problems involving the comparisons of quantities using ratios, proportions and percents.

## PROPOSED 1996 STATE GOAL

**7** **Make, use and estimate measurements of objects, amounts and relationships and determine tolerable levels of error.**

### ACADEMIC STANDARDS FOR GOAL 7

A. Measure and compare quantities using appropriate units, instruments and methods.

B. Estimate measurements and determine tolerable levels of error in measurements.

C. Apply appropriate instruments, scales and formulas to solve problems and interpret results.

## PROPOSED 1996 STATE GOAL

**8** **Identify and describe patterns and relationships in actual data, as well as solve problems and predict results using algebraic methods and symbols, tables, graphs, calculators and computers.**

### ACADEMIC STANDARDS FOR GOAL 8

A. Identify numerical relationships using variables and patterns.

B. Analyze and describe numerical relationships using a variety of representations.

C. Solve problems using systems of numbers and their properties.

D. Apply algebraic concepts and procedures to represent, simplify and solve problems.

# MATHEMATICS

*Continued*

**PROPOSED 1996 STATE GOAL**

**9** **Analyze, categorize and draw conclusions about objects and spatial relationships using geometric methods and drawings, sketches, graphs, models, symbols, calculators and computers.**

**ACADEMIC STANDARDS FOR GOAL 9**

A. Demonstrate and apply basic geometric concepts in one, two and three dimensions.
B. Identify, describe, classify and compare relationships within and among one-, two- and three-dimensional figures.
C. Construct convincing arguments and proofs to represent, transform and solve problems.
D. Apply trigonometric properties to solve problems.

**PROPOSED 1996 STATE GOAL**

**10** **Collect, organize and analyze data using statistical methods and tables, charts, graphs, calculators and computers to represent processes, to predict results and to interpret uncertainty and chance in practical applications.**

**ACADEMIC STANDARDS FOR GOAL 10**

A. Organize, represent, analyze and make conclusions from existing data.
B. Formulate questions, design data collection methods, gather and analyze data and communicate findings.
C. Determine and describe the probability of an event.

## SUMMARY CHART

# SCIENCE

Children have a natural curiosity about the world around them. The study of science provides students with the skills to follow areas of inquiry that interest them, to offer practical solutions to problems and to apply what they have learned.

The science standards describe essential knowledge and skills in three areas: scientific inquiry, factual knowledge combined with unifying concepts and the interaction of science and technology. Achieving these standards will prepare students to actively participate in a society that utilizes science and technology.

*As a result of their schooling, students will be able to:*

**PROPOSED 1996 STATE GOAL**

**11** **Understand and apply the methods of scientific inquiry and technological design to investigate questions, solve problems and analyze claims.**

**ACADEMIC STANDARDS FOR GOAL 11**

A. Explain the principles and practices of scientific research.
B. Apply the steps and methods of scientific inquiry to conduct experiments and investigate research questions.
C. Apply the principles and methods of technological design to solve problems.
D. Assess the credibility of scientific claims.

**PROPOSED 1996 STATE GOAL**

**12** **Understand the facts and unifying concepts of the life, physical and earth/space sciences.**

**ACADEMIC STANDARDS FOR GOAL 12**

A. Apply concepts of systems within the sciences.
B. Apply concepts of form and function within the sciences.
C. Apply concepts of change and constancy within the sciences.
D. Apply concepts of models and explanations within the sciences.

**PROPOSED 1996 STATE GOAL**

**13** **Understand connections and relationships among science, technology and society.**

**ACADEMIC STANDARDS FOR GOAL 13**

A. Explain the historical development and importance of science and technology.
B. Explain conceptual relationships between science and technology.
C. Describe and analyze relationships among science, technology and society in practical situations.

**SUMMARY CHART**

# SOCIAL SCIENCE

Studying social science helps students develop the ability to make informed decisions as citizens and community members. Social science includes the fields of political science and law, economics, history, geography and sociology. Students who achieve these standards will have a broad understanding of political and economic systems and a better understanding of events, trends, personalities and movements. They will also acquire a working knowledge of geography and state, national and world history.

*As a result of their schooling, students will be able to:*

## PROPOSED 1996 STATE GOAL

**14** **Understand, analyze and compare political systems, with an emphasis on the United States.**

## ACADEMIC STANDARDS FOR GOAL 14

A. Describe and explain basic principles of the United States government.
B. Compare and analyze the structures and functions of the political systems of Illinois, the United States and other nations.
C. Describe and explain election processes and responsibilities of citizens.
D. Analyze the roles and influences of individuals and interest groups in the political systems of Illinois, the United States and other nations.
E. Describe and explain United States foreign policy as it relates to other nations and international issues.

## PROPOSED 1996 STATE GOAL

**15** **Understand, analyze and compare economic systems, with an emphasis on the United States.**

## ACADEMIC STANDARDS FOR GOAL 15

A. Explain and compare how economic systems facilitate the exchange, production, distribution and consumption of goods and services.
B. Analyze the effects of scarcity and choice on consumers.
C. Analyze the effects of scarcity and choice on producers.
D. Explain how trade generates interdependence affecting the economies of nations.

## PROPOSED 1996 STATE GOAL

**16** **Understand and analyze events, trends, individuals and movements shaping the history of Illinois, the United States and other nations.**

## ACADEMIC STANDARDS FOR GOAL 16

A. Describe and explain contributions of selected individuals throughout history.
B. Explain the chronology and significance of major social, economic and political events throughout history.
C. Summarize and analyze historical relationships and developments leading to similarities and differences among people and societies throughout the world.
D. Explain the effects of urbanization, industrialization and technology on society and institutions throughout history.
E. Analyze the roles played by groups in developing a pluralistic society in the United States.

# SOCIAL SCIENCE

*Continued*

**PROPOSED 1996 STATE GOAL**

**17** **Demonstrate a knowledge of world geography, as well as an understanding of the effects of geography on society, with an emphasis on the United States.**

## ACADEMIC STANDARDS FOR GOAL 17

A. Locate, describe and explain places, regions and features on the earth using geographic terms, methods and representations.

B. Analyze and explain characteristics and interactions of the earth's physical systems.

C. Analyze and explain relationships between geographic factors and society.

D. Explain the historical significance of geography.

**PROPOSED 1996 STATE GOAL**

**18** **Understand, analyze and compare social systems, with an emphasis on the United States.**

## ACADEMIC STANDARDS FOR GOAL 18

A. Identify and compare characteristics of culture as reflected in language, literature, the arts and traditions.

B. Analyze the roles of groups and institutions in relation to people and societies.

## SUMMARY CHART

# PHYSICAL DEVELOPMENT AND HEALTH

Research shows that good health improves students' capacity to learn. Understanding the principles of physical development and health can help students develop both the abilities and the habits they need for good health. The standards include the academic knowledge and skills necessary to understand physical development and health, physical fitness, team skills, and prevention and treatment of illness and injury.

*As a result of their schooling, students will be able to:*

**PROPOSED 1996 STATE GOAL**

**19** **Understand concepts and acquire competent movement skills to engage in health-enhancing physical activity.**

**ACADEMIC STANDARDS FOR GOAL 19**

A. Demonstrate and analyze various movement concepts and applications.
B. Demonstrate knowledge of rules and strategies during physical activity.
C. Demonstrate physical competency in individual and team sports and recreational activities.

**PROPOSED 1996 STATE GOAL**

**20** **Understand how to assess, achieve and maintain physical fitness for continuing health.**

**ACADEMIC STANDARDS FOR GOAL 20**

A. Know and apply the physiological principles and components of health-related fitness.
B. Assess individual fitness levels.
C. Set goals based on fitness data and develop, implement and monitor an individual fitness improvement plan.

**PROPOSED 1996 STATE GOAL**

**21** **Develop team-building skills by working with others through physical activity.**

**ACADEMIC STANDARDS FOR GOAL 21**

A. Demonstrate responsibility during group physical activities.
B. Demonstrate participatory and leadership skills during planned group physical activity.

**PROPOSED 1996 STATE GOAL**

**22** **Understand principles of health promotion and the prevention and treatment of illness and injury.**

**ACADEMIC STANDARDS FOR GOAL 22**

A. Explain the basic principles of health promotion, illness prevention and safety.
B. Describe and explain the health influences among individuals, groups and communities.
C. Explain how the environment can affect health.

**SUMMARY CHART**

# PHYSICAL DEVELOPMENT AND HEALTH

*Continued*

**PROPOSED 1996 STATE GOAL**

**23** **Understand human body systems and factors that influence growth and development.**

**ACADEMIC STANDARDS FOR GOAL 23**

A. Describe and explain the structure and functions of the human body systems and how they interrelate.
B. Explain the effects of health-related actions on the body systems.
C. Describe factors that affect growth and development.

**PROPOSED 1996 STATE GOAL**

**24** **Promote and enhance health and well-being through the use of effective communication and decision-making skills.**

**ACADEMIC STANDARDS FOR GOAL 24**

A. Demonstrate procedures for positive communication, resolving differences and preventing violence.
B. Apply decision-making skills related to the protection and promotion of individual health.
C. Demonstrate skills essential to enhancing health and avoiding dangerous situations.

**SUMMARY CHART**

# FINE ARTS

Before children enter school, they draw, dance, experiment with sounds and act out stories. The arts are basic to a balanced and complete education for all students.

The fine arts include visual art, dance, music and drama. When students learn to create in images, gestures, sounds and words, they discover new ways to shape and share their ideas with others. Achieving standards in the fine arts will help students look at problems from multiple perspectives and understand the role of the arts in civilization.

*As a result of their schooling, students will be able to:*

**PROPOSED 1996 STATE GOAL**

**25** **Understand the sensory elements, organizational principles and ideas expressed in and among the arts.**

**ACADEMIC STANDARDS FOR GOAL 25**

A. Describe, analyze and evaluate the sensory elements and organizational principles of works of art.
B. Define, analyze and evaluate how sensory elements and organizational principles are used to express ideas in the arts.
C. Compare and contrast similarities, differences and connections of sensory elements, organizational principles, and ideas expressed within and among the arts.

**PROPOSED 1996 STATE GOAL**

**26** **Through creating and performing, understand how works of art are produced.**

**ACADEMIC STANDARDS FOR GOAL 26**

A. Demonstrate an understanding of how tools and processes are used in the arts.
B. Apply skills and knowledge necessary to create and perform in the arts.

**PROPOSED 1996 STATE GOAL**

**27** **Understand the role of the arts in civilizations, past and present.**

**ACADEMIC STANDARDS FOR GOAL 27**

A. Analyze how the arts function in history, society and everyday life.
B. Analyze how the arts reflect history, society and everyday life.

**SUMMARY CHART**

# FOREIGN LANGUAGES

*Foreign language is not a fundamental learning area as identified in the School Code, section 28-1. The foreign language goals, academic standards and learning benchmarks presented here are intended to be used as a resource for foreign language programs.*

Foreign languages help prepare students to live and work in a diverse society. Learning foreign languages promotes understanding and improves human interaction in our world.

The goals for foreign languages outline four main areas of proficiency: listening, speaking, reading and writing in the "target language," that is, the language being studied. In addition, students study the history and society of the countries where the languages are spoken, as well as the languages' connections to other learning areas.

*As a result of their schooling, students will be able to:*

**PROPOSED 1996 STATE GOAL**

**28** **Use the target language to communicate within and beyond the classroom setting.**

**ACADEMIC STANDARDS FOR GOAL 28**

A. Understand oral communication in the target language.
B. Speak effectively in the target language in various settings.
C. Understand written passages in the target language.
D. Write effectively in the target language for a variety of purposes and audiences.

**PROPOSED 1996 STATE GOAL**

**29** **Use the target language to develop an understanding of the customs, arts, literature, history and geography associated with the target language.**

**ACADEMIC STANDARDS FOR GOAL 29**

A. Demonstrate knowledge of manners and customs.
B. Demonstrate knowledge and understanding of the arts.
C. Demonstrate knowledge and understanding of literature and the media.
D. Demonstrate knowledge and understanding of history.
E. Demonstrate knowledge and understanding of demographics and geography.

**PROPOSED 1996 STATE GOAL**

**30** **Use the target language to make connections and reinforce knowledge and skills across academic, vocational and technical disciplines.**

**ACADEMIC STANDARDS FOR GOAL 30**

A. Reinforce and further knowledge of other disciplines through the target language.
B. Demonstrate knowledge and understanding of a variety of career options.

# ENGLISH LANGUAGE ARTS

The English language arts draft goals and academic standards were developed using the 1985 State Goals for Language Arts, various state and national standards drafts, and local education standards contributed by team members. Through achieving these goals and standards, students will gain proficiency in the language skills that are basic to all learning, critical to success in the workplace and essential to life as productive citizens.

English language arts includes reading, writing, speaking, listening and the study of literature. In addition, students must be able to study, retain and use information from many sources. Through the study of the English language arts, students should be able to read fluently, understanding a broad range of written materials. They must be able to communicate well and listen carefully and effectively. They should develop a command of the language and demonstrate their knowledge through speaking and writing for a variety of audiences and purposes. As students progress, a structured study of literature will allow them to recognize universal themes and to compare styles and ideas across authors and eras.

## APPLICATIONS OF LEARNING

**Applications of learning are significant methods of learning and using knowledge which cross academic disciplines. The ability to use these skills will greatly influence students' success later in life.**

---

### SOLVING PROBLEMS

**Recognize and investigate problems; formulate and propose solutions supported by reason and evidence.**

Solving problems demands that students be able to read and listen, comprehend ideas, ask and answer questions, clearly convey their own ideas through written and oral means, and explain their reasoning. Comprehending reading materials and editing and revising writing are in themselves forms of complex problem solving. The ability to locate, acquire and organize information from various sources, print and electronic, is essential to solving problems involving research. In all fields— language arts, science, mathematics, social studies, and others, the command of language is essential in stating problems, reasoning through alternative solutions, choosing a best solution and then conveying the results.

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### COMMUNICATING

**Express and interpret information and ideas.**

Communication is the essence of the English language arts, and communication surrounds us today in many forms. Individuals and groups exchange ideas and information—oral and written—at lunch tables, in newspapers and magazines, and through radio, television and on-line computer services. From the simplest, shortest conversations to the most complex technical manuals, language is the basis of all human communication. A strong command of reading, writing, speaking and listening is the foundation for interaction in the home, school, workplace and beyond.

### USING TECHNOLOGY

**Use appropriate instruments, electronic equipment, computers and networks to access information, process ideas and communicate results.**

Computers and telecommunications have become basic means for creating messages and moving information. In offices and homes, people write using word processors. Audio and visual media are used for both creative and practical forms of communication. The use of on-line services is now commonplace among researchers, authors, farmers and auto mechanics. Skilled use of these technologies provides students with necessary opportunities to search and process information, be in touch with experts, prepare documents, and learn and communicate in new, more effective ways.

### WORKING ON TEAMS

**Learn and contribute productively as individuals and as members of groups.**

In sports, the workplace, family and elsewhere, teamwork requires skill in the use of language. People must speak clearly and listen well as they share ideas, plans, instructions and evaluations. In researching and bringing outside information to the team, individuals must be able to search, select and understand a variety of sources. Documenting progress and reporting results demand the ability to organize information and convey it clearly. Those who can read, write, speak and listen well are valuable in any setting where people are working together to achieve shared goals.

### MAKING ACADEMIC CONNECTIONS

**Recognize and apply connections of important information and ideas within and among academic learning areas.**

The parts of English language arts are closely interconnected. Reading and writing provide the means to receive and send written messages. Likewise, listening and speaking enable people to receive and send oral information. Speaking and writing are the creative components, while listening and reading are the receptive components of language by which people access knowledge and demonstrate its applications. The need for these skills clearly crosses all academic areas.

# ENGLISH LANGUAGE ARTS

## PROPOSED 1996 STATE GOALS

## ACADEMIC STANDARDS

*As a result of their schooling, students will be able to:*

**GOAL 1** Read with understanding and fluency.

**ACADEMIC STANDARDS FOR GOAL 1**

A. Apply word analysis and vocabulary skills to comprehend text.
B. Apply reading strategies to improve fluency and understanding.
C. Demonstrate comprehension of a broad range of reading materials.

**GOAL 2** Understand the expressed meaning in literature representative of various societies, eras and ideas.

**ACADEMIC STANDARDS FOR GOAL 2**

A. Demonstrate an understanding of literary elements and techniques.
B. Explain, analyze and interpret the expressed meaning in literature representing various societies, eras and ideas.

**GOAL 3** Write to communicate for a variety of purposes.

**ACADEMIC STANDARDS FOR GOAL 3**

A. Use correct grammar, spelling, punctuation, capitalization and sentence structure.
B. Compose well-organized and coherent writing for specific purposes and audiences.
C. Communicate ideas in writing to accomplish a variety of purposes.

**GOAL 4** Listen and speak effectively in a variety of situations.

**ACADEMIC STANDARDS FOR GOAL 4**

A. Listen effectively in formal and informal situations.
B. Speak effectively using language appropriate to the situation and audience.

**GOAL 5** Use reading, writing, listening and speaking skills to research and apply information for specific purposes.

**ACADEMIC STANDARDS FOR GOAL 5**

A. Locate, acquire and organize information from various sources to answer questions and solve problems.
B. Analyze and evaluate information acquired from various sources.
C. Apply acquired information, concepts and ideas.

# STATE GOAL 1

Read with understanding and fluency

**WHY THIS GOAL IS IMPORTANT**

Reading is indispensable. It is students' (and adults') essential path to information and ideas in books, newspapers, magazines, manuals, letters, contracts and a host of other materials. Students who read well and confidently—strongly understanding content—have *the* foundation for learning in all other academic areas. They will be able to connect what they read now with what they have read and learned in the past. They will have a growing base of knowledge from which to draw in many new situations.

***NOTE: The "e.g.'s" are meant as examples only. There has been no attempt to identify all possible items, but rather to give guidance to the teacher as to the general intent of the standards and benchmarks.***

*As a result of their schooling, students will be able to:*

| ACADEMIC STANDARD | EARLY ELEMENTARY LEARNING BENCHMARKS | LATE ELEMENTARY LEARNING BENCHMARKS |
|---|---|---|
| **A. Apply word analysis and vocabulary skills to comprehend text.** | **1.A.1a** Apply word analysis skills (e.g., phonics, syllables, prefixes, suffixes and word patterns) to recognize new words.<br>**1.A.1b** Comprehend unfamiliar words using context clues and prior knowledge. | **1.A.2a** Read and comprehend unfamiliar words using root words, synonyms, antonyms, word origins and derivations.<br>**1.A.2b** Use a variety of resources including glossaries, dictionaries and thesauruses to clarify word meaning. |
| **B. Apply reading strategies to improve fluency and understanding.** | **1.B.1a** Identify purposes, make predictions, connect important ideas, and link text to previous experiences and knowledge.<br>**1.B.1b** Clarify meaning when necessary (e.g., reread, read ahead, use visual and context clues, ask questions, retell, use meaningful substitutions).<br>**1.B.1c** Read aloud with fluency and accuracy.<br>**1.B.1d** Identify the purpose of selected texts. | **1.B.2a** Anticipate what will be read (e.g., survey materials, ask questions, make predictions), connect and clarify ideas, and extend ideas beyond the text.<br>**1.B.2b** Clarify meaning when necessary (e.g., in addition to previous skills, note vocabulary and language problems, seek additional information).<br>**1.B.2c** Read aloud with rhythm, flow and meter that sounds like standard English speech.<br>**1.B.2d** Relate text structure to purpose of the text. |

*Continued on page 6*

| MIDDLE/JUNIOR HIGH SCHOOL LEARNING BENCHMARKS | EARLY HIGH SCHOOL LEARNING BENCHMARKS | LATE HIGH SCHOOL LEARNING BENCHMARKS | NOTES |
|---|---|---|---|
| **1.A.3a** Expand knowledge of word origins and derivations and use idioms, analogies, metaphors and similes to extend vocabulary development.<br>**1.A.3b** Analyze the meaning of words and phrases in their context. | **1.A.4a** Apply knowledge of word origins and derivations to comprehend words used in specific content areas (e.g., scientific, political, literary, mathematical).<br>**1.A.4b** Compare the meaning of words and phrases and use analogies to explain the relationships among them. | **1.A.5a** Identify and analyze new terminology applying knowledge of word origins and derivations in a variety of applied settings.<br>**1.A.5b** Analyze the meaning of abstract concepts and the effects of particular word and phrase choices. | |
| **1.B.3a** Anticipate what will be read, form tentative hypotheses and connect to other information.<br>**1.B.3b** Clarify text meaning when necessary (e.g., in addition to previous skills, clarify terminology, compare to other readings).<br>**1.B.3c** Read aloud with appropriate expression (e.g., irony, sarcasm, humor).<br>**1.B.3d** Analyze text structure and detail for relevance to the purpose of the text. | **1.B.4a** Anticipate what will be read, connect and clarify ideas, analyze coherence and theme and connect with other sources.<br>**1.B.4b** Analyze, interpret and compare a variety of texts for purpose, structure, content, detail and effect.<br>**1.B.4c** Use text genre and organization to understand texts, comparing and contrasting authors' styles. | **1.B.5a** Evaluate a variety of texts for purpose, structure, content, detail and effect.<br>**1.B.5b** Use text genre and organization to understand a variety of complex texts. | |

## STATE GOAL 1

Read with understanding and fluency

*Continued*

***As a result of their schooling, students will be able to:***

| ACADEMIC STANDARD | EARLY ELEMENTARY LEARNING BENCHMARKS | LATE ELEMENTARY LEARNING BENCHMARKS |
|---|---|---|
| **C.** Demonstrate comprehension of a broad range of reading materials. | **1.C.1a** Summarize text content.<br>**1.C.1b** Identify important themes and topics in both fiction and nonfiction selections, supporting the identification with information and examples from the text.<br>**1.C.1c** Make comparisons across reading selections.<br>**1.C.1d** Set, monitor and accomplish reading goals (e.g., books per month). | **1.C.2a** Summarize text content and relate it to the purpose of the text.<br>**1.C.2b** Identify and explain elements of plot, possible themes, character traits and motives in fictional selections, supporting the interpretation with information and examples from the text.<br>**1.C.2c** Identify and explain major concepts, evidence that supports those concepts and possible applications and purposes of nonfiction selections, supporting the interpretation with information and examples from the text.<br>**1.C.2d** Compare reading selections using organization and content and relate content to previous knowledge.<br>**1.C.2e** Set, monitor and accomplish quantitative (e.g., pages per week, books per month) and qualitative (e.g., type of material, reading level) reading goals with selections from a variety of sources. |

***NOTE:** The "e.g.'s" are meant as examples only. There has been no attempt to identify all possible items, but rather to give guidance to the teacher as to the general intent of the standards and benchmarks.*

| MIDDLE/JUNIOR HIGH SCHOOL LEARNING BENCHMARKS | EARLY HIGH SCHOOL LEARNING BENCHMARKS | LATE HIGH SCHOOL LEARNING BENCHMARKS | NOTES |
|---|---|---|---|
| **1.C.3a** Analyze text content in relation to the purpose of the text. | **1.C.4a** Analyze elements of plot, subplots, connecting themes, character traits, motives and effect of the setting in fictional selections to demonstrate understanding of the text. | **1.C.5a** Critically evaluate texts including elements of plot, subplots, connecting themes, character traits, motives and effect of setting in fictional selections. | |
| **1.C.3b** Interpret elements of plot, possible themes, character traits and motives in fictional selections to demonstrate understanding of the text. | **1.C.4b** Analyze major concepts, evidence that supports those concepts and possible applications and purposes of nonfiction selections to demonstrate understanding of the text. | **1.C.5b** Critically evaluate books, articles and reports including major concepts, evidence that supports those concepts, possible applications and purposes of nonfiction selections to demonstrate understanding of the text. | |
| **1.C.3c** Interpret major concepts, evidence that supports those concepts and possible applications and purposes of nonfiction selections to demonstrate understanding of the text. | **1.C.4c** Set, monitor and accomplish quantitative (e.g., weekly, monthly) and qualitative (e.g., type of material, reading level) reading goals with selections from a variety of sources. | **1.C.5c** Set, monitor and accomplish quantitative (e.g., weekly, monthly) and qualitative (e.g., type of material, reading level) reading goals with selections from a variety of sources. | |
| **1.C.3d** Draw on background knowledge and knowledge of text structure to understand reading selections. | | | |
| **1.C.3e** Set, monitor and accomplish quantitative (e.g., weekly, monthly) and qualitative (e.g., type of material, reading level) reading goals with selections from a variety of sources. | | | |

ENGLISH LANGUAGE ARTS

# STATE GOAL 2

Understand the expressed meaning in literature representative of various societies, eras and ideas.

### WHY THIS GOAL IS IMPORTANT

Literature transmits ideas, reflects societies and eras and expresses the human imagination. It brings understanding, enrichment and joy. Appreciating literature and recognizing its genres enable students to learn and respond to literary texts and the special features of these texts. Literature study includes understanding the structure and intent of a short poem or a long, complex book. By exploring the techniques that authors use to convey messages and evoke responses, students connect literature to their own lives and daily experiences.

***NOTE:* *The "e.g.'s" are meant as examples only.* *There has been no attempt to identify all possible items, but rather to give guidance to the teacher as to the general intent of the standards and benchmarks.***

*As a result of their schooling, students will be able to:*

| ACADEMIC STANDARD | EARLY ELEMENTARY LEARNING BENCHMARKS | LATE ELEMENTARY LEARNING BENCHMARKS |
|---|---|---|
| **A. Demonstrate an understanding of literary elements and techniques.** | **2.A.1a** Identify the story elements of literary works (e.g., theme, setting, plot, character).<br>**2.A.1b** Classify literary works as fiction or nonfiction.<br>**2.A.1c** Describe differences in structure between prose and poetry. | **2.A.2a** Identify literary elements (e.g., rhyme, meter) and literary techniques (e.g., characterization, use of narration, use of dialog) in a variety of literary works including but not limited to fiction, nonfiction, and poetry.<br>**2.A.2b** Compare and contrast characters, setting and plot in original literature.<br>**2.A.2c** Describe how story elements (e.g., character, setting, plot, point of view, tone and conflict) are used in original literature to create meaning. |

*Continued on page 10*

| MIDDLE/JUNIOR HIGH SCHOOL LEARNING BENCHMARKS | EARLY HIGH SCHOOL LEARNING BENCHMARKS | LATE HIGH SCHOOL LEARNING BENCHMARKS | NOTES |
|---|---|---|---|
| **2.A.3a** Identify and analyze a variety of literary techniques (e.g., figurative language, allusion, dialog, description, word choice) within classical and contemporary works representing a variety of genres (e.g., fiction, nonfiction, poetry). | **2.A.4a** Evaluate the effective use of literary techniques (e.g., figurative language, allusion, dialog, description, symbolism, word choice, style) in classic and contemporary literature representing a variety of forms (e.g. fiction, nonfiction, drama, poetry). | **2.A.5a** Compare oral, written or viewed works from various eras and countries and analyze complex literary devices (e.g., structures, images, forms, foreshadowing, flashbacks, progressive time, digressive time). | |
| **2.A.3b** Identify characteristics, origins and authors of various literary forms (e.g., short stories, novels, drama, fables, biographies, documentaries, poetry). | **2.A.4b** Explain the relationship between and among elements of literature: character, plot, setting, tone, point of view, theme. | **2.A.5b** Describe the development of form (e.g., short stories, essays, speeches, poetry, plays, novels) and purpose in American literature and literature of other countries. | |
| **2.A.3c** Compare literary works of different eras and countries for ideas and themes. | **2.A.4c** Analyze relationships between author's style, literary form (e.g., short stories, novels, drama, fables, biographies, documentaries, poetry) and intended effect on the reader. | | |
| **2.A.3d** Describe how word choice and language structure convey an author's viewpoint. | **2.A.4d** Explain the influence of historical context on form, style, and point of view for a variety of literary works. | | |

## STATE GOAL 2

Understand the expressed meaning in literature representative of various societies, eras and ideas.

*Continued*

***As a result of their schooling, students will be able to:***

| ACADEMIC STANDARD | EARLY ELEMENTARY LEARNING BENCHMARKS | LATE ELEMENTARY LEARNING BENCHMARKS |
|---|---|---|
| **B. Explain, analyze and interpret the expressed meaning in literature representing various societies, eras and ideas.** | **2.B.1a** Identify, as individuals and as members of a discussion group, ideas expressed in a variety of fiction and nonfiction literature (e.g., short stories, nonfiction articles, poetry).<br>**2.B.1b** Identify common literary themes across various societies and eras. | **2.B.2a** Identify, as individuals and as members of a discussion group, ideas expressed in a variety of literary selections and relate them to previous readings.<br>**2.B.2b** Organize literary themes across different societies and eras. |

***NOTE:*** *The "e.g.'s" are meant as examples only.* ***There has been no attempt to identify all possible items, but rather to give guidance to the teacher as to the general intent of the standards and benchmarks.***

| MIDDLE/JUNIOR HIGH SCHOOL LEARNING BENCHMARKS | EARLY HIGH SCHOOL LEARNING BENCHMARKS | LATE HIGH SCHOOL LEARNING BENCHMARKS | NOTES |
|---|---|---|---|
| **2.B.3a** Explain, as individuals and as members of a discussion group, how various forms of literature convey ideas through form, content and purpose (e.g., historical fiction, nonfiction, short stories, film, written and performed drama, poetry, and information technology).<br>**2.B.3b** Compare and contrast common literary themes across various societies and eras. | **2.B.4** Analyze form, content purpose and major themes of American literature and literature of other countries in their historical perspective. | **2.B.5** Evaluate classical and contemporary literature representing a variety of forms; identify recurring universal themes; and explain how these can be used to express ideas in terms of form, content and purpose (e.g., use cause/effect analysis and extended definition to assess various literary forms). | |

ENGLISH LANGUAGE ARTS

# STATE GOAL 3

Write to communicate for a variety of purposes.

*As a result of their schooling, students will be able to:*

### WHY THIS GOAL IS IMPORTANT

The ability to write clearly is essential to any person's effective communications. It is the companion skill to good reading. It is critical to employability and productivity in today's world. Students with high-level writing skills can produce documents that show planning and organization and can effectively convey the intended message and meaning. Skilled writers can write for a variety of audiences in differing styles, ranging from creative to work-related, and in formats ranging from stories and class reports to proposals, correspondence and business reports. Students who are able to use word processors and computers to write will both enrich their experience and extend their skills.

***NOTE:** __The "e.g.'s" are meant as examples only.__ There has been no attempt to identify all possible items, but rather to give guidance to the teacher as to the general intent of the standards and benchmarks.*

| ACADEMIC STANDARD | EARLY ELEMENTARY LEARNING BENCHMARKS | LATE ELEMENTARY LEARNING BENCHMARKS |
|---|---|---|
| **A. Use correct grammar, spelling, punctuation, capitalization and sentence structure.** | **3.A.1a** Use nouns, pronouns, verbs, adverbs, adjectives and conjunctions in sentences.<br>**3.A.1b** Write passages with correct grammar, spelling, punctuation and sentence structure. | **3.A.2a** Use subordinating conjunctions, prepositions, and interjections.<br>**3.A.2b** Using appropriate technology, write paragraphs that include all major parts of speech with accurate spelling, capitalization and punctuation.<br>**3.A.2c** Analyze sentences for subject-verb and pronoun-antecedent agreement, adverb and adjective usage and verb tense. |

*Continued on page 14*

| MIDDLE/JUNIOR HIGH SCHOOL LEARNING BENCHMARKS | EARLY HIGH SCHOOL LEARNING BENCHMARKS | LATE HIGH SCHOOL LEARNING BENCHMARKS | NOTES |
|---|---|---|---|
| **3.A.3** Demonstrate command of subject-verb and pronoun-antecedent agreement, adverb and adjective usage and verb tense. | **3.A.4** Use standard written English, applying established rules and conventions and using a wide range of grammatical constructions including phrases, clauses and parallel structure. | **3.A.5** Produce grammatically correct documents using standard manuscript specifications for specified purposes (creative writing competitions, scientific/technical reports, publication in established journals). | |

## STATE GOAL 3

Write to communicate for a variety of purposes.

*Continued*

***As a result of their schooling, students will be able to:***

| ACADEMIC STANDARD | EARLY ELEMENTARY LEARNING BENCHMARKS | LATE ELEMENTARY LEARNING BENCHMARKS |
|---|---|---|
| **B. Compose well-organized and coherent writing for specific purposes and audiences.** | **3.B.1a** Use prewriting strategies to generate and organize ideas (e.g., focus on one topic; organize writing to include a beginning, middle and end; use descriptive words when writing about people, places, things, events).<br>**3.B.1b** Demonstrate focus, organization, elaboration and integration in written documents (e.g., short stories, letters, essays, reports). | **3.B.2a** Generate and organize ideas using a variety of planning strategies (e.g., mapping, outlining, drafting).<br>**3.B.2b** Establish central idea, organization, elaboration and unity in relation to purpose and audience.<br>**3.B.2c** Expand and embed ideas by using modifiers, subordination and standard paragraph organization.<br>**3.B.2d** Edit documents for clarity, subject-verb and pronoun-antecedent agreement, adverb and adjective agreement, and verb tense; proofread for spelling, capitalization and punctuation; and ensure that documents are formatted in final form for submission and/or publication. |

*Continued on page 16*

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| MIDDLE/JUNIOR HIGH SCHOOL LEARNING BENCHMARKS | EARLY HIGH SCHOOL LEARNING BENCHMARKS | LATE HIGH SCHOOL LEARNING BENCHMARKS | NOTES |
|---|---|---|---|
| **3.B.3a** Produce documents that convey a clear understanding and interpretation of ideas and information, displaying focus, organization, elaboration and coherence.<br>**3.B.3b** Edit and revise for word choice, organization, consistent point of view, and transitions among paragraphs using contemporary technology and formats suitable for submission and/or publication. | **3.B.4a** Produce, using contemporary technology, documents that exhibit a range of writing techniques appropriate to purpose and audience, with clarity of focus, logic of organization, appropriate elaboration and support, and overall coherence.<br>**3.B.4b** Edit and revise work for submission and/or publication (e.g., manuscript form, appropriate citation of sources).<br>**3.B.4c** Evaluate written work for its effectiveness and make recommendations for its improvement. | **3.B.5** Produce, using contemporary technology, documents that are intended for publication for specific purposes and audiences and that exhibit clarity of focus, logic of organization, appropriate elaboration and support, and overall coherence, using contemporary technology. | |

## STATE GOAL 3

Write to communicate for a variety of purposes.

*Continued*

***As a result of their schooling, students will be able to:***

| ACADEMIC STANDARD | EARLY ELEMENTARY LEARNING BENCHMARKS | LATE ELEMENTARY LEARNING BENCHMARKS |
|---|---|---|
| **C. Communicate ideas in writing to accomplish a variety of purposes.** | **3.C.1** Write for a variety of purposes (e.g., description, information, explanation, persuasion, entertainment). | **3.C.2** Write for a variety of purposes for a specified audience in a variety of forms including narrative (e.g., fiction, autobiography), expository (e.g., reports, essays), and persuasive writings (e.g., editorials, advertisements). |

***NOTE:** The "e.g.'s" are meant as examples only. There has been no attempt to identify all possible items, but rather to give guidance to the teacher as to the general intent of the standards and benchmarks.*

| MIDDLE/JUNIOR HIGH SCHOOL LEARNING BENCHMARKS | EARLY HIGH SCHOOL LEARNING BENCHMARKS | LATE HIGH SCHOOL LEARNING BENCHMARKS | NOTES |
|---|---|---|---|
| **3.C.3** Compose narrative, expository, and persuasive writings (e.g., in addition to previous writings, literature reviews, instructions, news articles) for a specified audience. | **3.C.4a** Compose narrative, expository, persuasive and technical writings (e.g., fiction and nonfiction narratives, brochures, formal reports, proposals, research summaries, analyses, editorials, articles) adapting content, vocabulary, voice and tone to the audience, purpose and situation.<br>**3.C.4b** Write for real or potentially real situations in academics, careers and professions, and civic contexts (e.g., college applications, job applications, business letters, petitions). | **3.C.5** Communicate information and ideas in narrative, expository and persuasive writing with clarity and effectiveness in a variety of written forms using appropriate traditional and electronic formats; adapt content, vocabulary, voice and tone to the audience, purpose and situation. | |

# STATE GOAL 4

Listen and speak effectively in a variety of situations.

### WHY THIS GOAL IS IMPORTANT

Of all the language arts, listening and speaking are those most often used on a daily basis at home, school, work or in the community. Skill in speaking is universally recognized as a primary indicator of a person's knowledge, skill and credibility. In person, by phone or even video, good listening and speaking skills are essential to sending, receiving and understanding messages. To understand messages spoken by others, students must be able to listen carefully, using specific techniques to clarify what they have heard. For speaking properly and making messages understood, grammar, sentence structure, tone, expression and emphasis must be part of students' repertoire.

***NOTE:*** ***The "e.g.'s" are meant as examples only. There has been no attempt to identify all possible items, but rather to give guidance to the teacher as to the general intent of the standards and benchmarks.***

*As a result of their schooling, students will be able to:*

| ACADEMIC STANDARD | EARLY ELEMENTARY LEARNING BENCHMARKS | LATE ELEMENTARY LEARNING BENCHMARKS |
|---|---|---|
| **A. Listen effectively in formal and informal situations.** | **4.A.1a** Listen attentively by facing the speaker, making eye contact and paraphrasing what is said.<br>**4.A.1b** Ask questions and respond to questions from the teacher and from group members to improve comprehension.<br>**4.A.1c** Follow oral directions. | **4.A.2a** Summarize and paraphrase spoken messages orally and in writing in formal and informal situations.<br>**4.A.2b** Ask and respond to questions related to oral presentations and messages in small and large group settings.<br>**4.A.2c** Restate and carry out simple oral instructions. |
| **B. Speak effectively using language appropriate to the situation and audience.** | **4.B.1a** Present brief oral reports, speaking clearly at an understandable rate and adjusting volume, expression and tone in accordance with the message and audience.<br>**4.B.1b** Use grammatically correct language and appropriate vocabulary when speaking (e.g., sentence structure, word use, word forms).<br>**4.B.1c** Speak to convey messages in group settings as both contributors and leaders. | **4.B.2a** Plan and deliver oral presentations, matching purpose and message to the audience, organizing content in a logical sequence for clarity and emphasis, and using visual aids.<br>**4.B.2b** Use grammatically correct language and match vocabulary, voice modulation and nonverbal expressions to the intended purpose, message and audience.<br>**4.B.2c** Use speaking skills to participate in and lead group discussions; analyze the effectiveness of spoken interactions based on the ability of the group to achieve its goals. |

| MIDDLE/JUNIOR HIGH SCHOOL LEARNING BENCHMARKS | EARLY HIGH SCHOOL LEARNING BENCHMARKS | LATE HIGH SCHOOL LEARNING BENCHMARKS | NOTES |
|---|---|---|---|
| **4.A.3a** Demonstrate ways that listening attentively can improve comprehension (e.g., ask probing questions, provide feedback to a speaker, summarize and paraphrase complex spoken messages).<br>**4.A.3b** Compare a speaker's verbal and nonverbal messages.<br>**4.A.3c** Restate and carry out multi-step oral instructions. | **4.A.4a** Apply listening skills in practical settings (e.g., take on roles of interviewer and interviewee, debate an issue one-on-one with another speaker).<br>**4.A.4b** Analyze a speaker's verbal and nonverbal messages.<br>**4.A.4c** Follow complex oral instructions. | **4.A.5a** Apply listening skills as individuals and as members of a group in a variety of settings (e.g., lectures, discussions, conversations, team projects, presentations, interviews).<br>**4.A.5b** Use criteria to evaluate a variety of speakers' verbal and nonverbal messages. | |
| **4.B.3a** Deliver planned and impromptu oral presentations, using language and vocabulary appropriate to the purpose, message and audience; clarifying details and supporting information, where appropriate; and visual aids and technology.<br>**4.B.3b** Prepare, deliver and evaluate oral reports of group progress and interaction in relation to the group's goals. | **4.B.4** Deliver planned and impromptu informative and persuasive oral presentations, as individuals and as members of a group, demonstrating organization, clarity, vocabulary, supporting evidence and accuracy and using visual aids and technology as support. | **4.B.5** Deliver planned and impromptu oral presentations, as individuals and as members of a group, conveying results of research, projects or literature studies to audiences of peers and professionals; use supporting visual aids and technology. | |

# STATE GOAL 5

Use reading, writing, listening and speaking skills to research and apply information for specific purposes.

### WHY THIS GOAL IS IMPORTANT

The explosion of information and knowledge demands that students today be able to navigate a wide variety of sources (written, visual and electronic), sort though data and materials to identify relevant and useful information, and apply what they have discovered. These skills are critical in school across all learning areas and become more important after graduation.

***NOTE: The "e.g.'s" are meant as examples only. There has been no attempt to identify all possible items, but rather to give guidance to the teacher as to the general intent of the standards and benchmarks.***

***As a result of their schooling, students will be able to:***

| ACADEMIC STANDARD | EARLY ELEMENTARY LEARNING BENCHMARKS | LATE ELEMENTARY LEARNING BENCHMARKS |
|---|---|---|
| **A. Locate, acquire and organize information from various sources to answer questions and solve problems.** | **5.A.1a** Identify and use traditional and electronic resources (e.g., reference books and other library materials, people with expertise and/or experience, electronically stored information sources) to locate and acquire information.<br>**5.A.1b** Identify categories for information (e.g., types of documents, which sources are current or outdated, factual vs. editorial material). | **5.A.2a** Locate and acquire information using traditional sources, contemporary technology and on-line search methods.<br>**5.A.2b** Organize and categorize information using contemporary technology.<br>**5.A.2c** Identify authors and explain the benefits of using primary sources. |
| **B. Analyze and evaluate information acquired from various sources.** | **5.B.1** Relate materials to the specific purpose for which they were obtained. | **5.B.2** Select materials and sources to match specific purposes and explain the importance and usefulness of the selected materials. |

*Continued on page 22*

| MIDDLE/JUNIOR HIGH SCHOOL LEARNING BENCHMARKS | EARLY HIGH SCHOOL LEARNING BENCHMARKS | LATE HIGH SCHOOL LEARNING BENCHMARKS | NOTES |
|---|---|---|---|
| **5.A.3a** Differentiate and compare information using traditional and electronic resources and online search methods.<br>**5.A.3b** Credit sources for both quoted and paraphrased information. | **5.A.4a** Conduct original inquiries to answer questions or address problems using traditional and electronic resources, as well as online search methods.<br>**5.A.4b** Document sources of information using professionally accepted manuscript requirements (e.g., citations, end notes, bibliographic references). | **5.A.5** Conduct information searches to investigate specific questions and issues, applying knowledge of the structure and organization of various reference, media and electronic information sources. | |
| **5.B.3** Choose and analyze information sources, as individuals and as members of a group, for individual, academic and functional purposes. | **5.B.4** Choose and evaluate, as individuals and as members of a group, primary and secondary sources (print and nonprint) for a variety of purposes. | **5.B.5** Evaluate the usefulness of information; synthesize information to support a thesis; and present information in a logical manner in oral and written forms as individuals and as members of a group. | |

## STATE GOAL 5

Use reading, writing, listening and speaking skills to research and apply information for specific purposes.

*Continued*

***As a result of their schooling, students will be able to:***

| ACADEMIC STANDARD | EARLY ELEMENTARY LEARNING BENCHMARKS | LATE ELEMENTARY LEARNING BENCHMARKS |
|---|---|---|
| **C. Apply acquired information, concepts and ideas.** | **5.C.1a** Write letters, reports and stories based on acquired information.<br>**5.C.1b** Engage in a dialog that has a stated purpose and summarize the results. | **5.C.2a** Plan, write, edit and revise documents (e.g., explanations, correspondence, summaries, descriptions, instructions, stories) based on acquired information.<br>**5.C.2b** Prepare and deliver oral presentations based on acquired information.<br>**5.C.2c** Plan and conduct an interview and summarize the results. |

***NOTE:*** ***The "e.g.'s" are meant as examples only. There has been no attempt to identify all possible items, but rather to give guidance to the teacher as to the general intent of the standards and benchmarks.***

| MIDDLE/JUNIOR HIGH SCHOOL LEARNING BENCHMARKS | EARLY HIGH SCHOOL LEARNING BENCHMARKS | LATE HIGH SCHOOL LEARNING BENCHMARKS | NOTES |
|---|---|---|---|
| **5.C.3a** Plan, write, edit and revise documents (e.g., databases, graphics, spreadsheets) using contemporary technology.<br>**5.C.3b** Prepare and orally present original work (e.g., poems, monologues, reports, plays, stories) supported by research.<br>**5.C.3c** Research and defend, in oral and written forms, both sides of an issue, using supporting information. | **5.C.4a** Plan, write, edit, revise and prepare a variety of documents for publication (e.g., brochures, formal reports, proposals, research summaries, analyses, editorials, articles).<br>**5.C.4b** Produce oral presentations and written documents using supportive research and incorporating contemporary technology.<br>**5.C.4c** Prepare for and participate in formal debates. | **5.C.5** Write well-documented research papers or prepare documentaries related to academic, functional or occupational topics and present the findings in an oral and/or visual presentation, both as individuals and as members of a group and using contemporary technology. | |

# MATHEMATICS

The draft Illinois standards for mathematics were developed using the National Council of Teachers of Mathematics *Curriculum and Evaluation Standards,* other states' standards and local outcomes from Illinois school districts.

Mathematics is a language we use to identify, describe and investigate the patterns and challenges of everyday living. It helps us to understand events that have occurred and to predict and prepare for events to come so that we might more fully understand our world and more successfully live in it.

Mathematics encompasses arithmetic, geometry, algebra, trigonometry, statistics and other fields. It deals with quantities, magnitudes and forms and their characteristics and relationships. Solving problems is at the heart of mathematics. Mathematics is a collection of concepts and skills; it is also a means of investigation, reasoning and communicating.

Students meeting standards in mathematics will have an understanding of how numbers are used and represented. They will be able to use addition, subtraction, multiplication and division to solve problems of increasing complexity. They will be able to read, write and discuss mathematics, using words and numbers to solve problems. Progressing to higher levels, students will learn to use their knowledge and skills in practical settings. Truly competent students of mathematics will be able to investigate, conjecture and reason, using a variety of methods to solve a range of problems.

## APPLICATIONS OF LEARNING

**Applications of learning are significant methods of learning and using knowledge which cross academic disciplines. The ability to use these skills will greatly influence students' success later in life.**

### SOLVING PROBLEMS

**Recognize and investigate problems; formulate and propose solutions supported by reason and evidence.**

Problem solving is the "doing" of mathematics. Students are called upon to use numbers, symbols, operations, measurements, functions, geometric symbols and data to help find answers to real questions. Sometimes problems are structured, simply requiring accuracy and verification. Other times, particularly in "real life" situations, the problems are non-routine and require imagination. Mathematics provides methods for solving a range of problems. The skills and ways of thinking learned in the study of mathematics are useful well beyond school.

## COMMUNICATING

**Express and interpret information and ideas.**

Mathematics gives students an added language in the form of numbers, symbols, equations, figures and graphs. Just as verbal languages help people send and receive information, mathematics helps people translate and understand, solve problems and communicate the results. In fact, mathematics is a very efficient way for researchers, professionals and technicians to communicate. Ultimately, learning this "language" helps students in their verbal language skills as well.

## USING TECHNOLOGY

**Use appropriate instruments, electronic equipment, computers and networks to access information, process ideas and communicate results.**

Students need to be able to understand and use mathematics starting with pencil and paper. Today's technology, however, provides the means to enhance speed and accuracy, store and retrieve information and results, and extend the application of students' knowledge. Beyond school, students need to know how to use tools such as graphing systems, spreadsheets, calculators and computers in engineering, science, business, government and elsewhere.

## WORKING ON TEAMS

**Learn and contribute productively as individuals and as members of groups.**

The practical use of mathematics requires shared expertise as well as individual knowledge and skills. Group effort allows students to share ideas, plans, methods and results. In the process, students learn new ways to approach problems and expand their own knowledge and expertise.

## MAKING ACADEMIC CONNECTIONS

**Recognize and apply connections of important information and ideas within and among academic learning areas.**

Mathematics is used extensively in science, social science, physics, business, industrial arts, fine arts, medicine and other fields. It offers necessary tools and new ways of thinking. In addition, mathematics students must learn to see the interconnections between the separate strands of mathematics itself: computation, geometry, algebra, statistics and others. Connecting mathematics with other disciplines and daily situations underscores the importance and utility of mathematics.

# MATHEMATICS

## PROPOSED 1996 STATE GOALS

## ACADEMIC STANDARDS

*As a result of their schooling, students will be able to:*

**GOAL 6** Demonstrate a knowledge and sense of numbers and their representations, including basic operations (addition, subtraction, multiplication, division), ratios and proportions, by using multiple ways of obtaining exact values and estimates to understand patterns involving numbers and their applications.

### ACADEMIC STANDARDS FOR GOAL 6

A. Demonstrate knowledge and use of numbers and their relations and representations in a broad range of settings from theoretical to practical.

B. Investigate, represent and solve problems using number facts, operations (addition, subtraction, multiplication, division), algorithms and relationships.

C. Solve problems using multiple approaches to computation including estimation, mental mathematics, paper-and-pencil methods and technology.

D. Solve problems involving the comparisons of quantities using ratios, proportions and percents.

**GOAL 7** Make, use and estimate measurements of objects, amounts and relationships and determine tolerable levels of error.

### ACADEMIC STANDARDS FOR GOAL 7

A. Measure and compare quantities using appropriate units, instruments and methods.

B. Estimate measurements and determine tolerable levels of error in measurements.

C. Apply appropriate instruments, scales and formulas to solve problems and interpret results.

**GOAL 8** Identify and describe patterns and relationships in actual data, as well as solve problems and predict results using algebraic methods and symbols, tables, graphs, calculators and computers.

### ACADEMIC STANDARDS FOR GOAL 8

A. Identify numerical relationships using variables and patterns.

B. Analyze and describe numerical relationships using a variety of representations.

C. Solve problems using systems of numbers and their properties.

D. Apply algebraic concepts and procedures to represent, simplify and solve problems.

**GOAL 9** Analyze, categorize and draw conclusions about objects and spatial relationships using geometric methods and drawings, sketches, graphs, models, symbols, calculators and computers.

### ACADEMIC STANDARDS FOR GOAL 9

A. Demonstrate and apply basic geometric concepts in one, two and three dimensions.

B. Identify, describe, classify and compare relationships within and among one-, two- and three-dimensional figures.

C. Construct convincing arguments and proofs to represent, transform and solve problems.

D. Apply trigonometric properties to solve problems.

**GOAL 10** Collect, organize and analyze data using statistical methods and tables, charts, graphs, calculators and computers to represent processes, to predict results and to interpret uncertainty and chance in practical applications.

### ACADEMIC STANDARDS FOR GOAL 10

A. Organize, represent, analyze and make conclusions from existing data.

B. Formulate questions, design data collection methods, gather and analyze data and communicate findings.

C. Determine and describe the probability of an event.

# STATE GOAL 6

Demonstrate a knowledge and sense of numbers and their representations, including basic operations (addition, subtraction, multiplication, division), ratios and proportions, by using multiple ways of obtaining exact values and estimates to understand patterns involving numbers and their applications.

### WHY THIS GOAL IS IMPORTANT

The "language" of numbers and operations is at the heart of mathematical problem solving. It starts with the most basic operations (addition, subtraction, multiplication, division) and moves on to more abstract ideas and relationships. It serves in such diverse problem-solving situations as comparing unit prices on groceries, estimating materials for a construction job or predicting the trajectory of a rocket. In using this language, students must be able to combine mental mathematics with paper-and-pencil methods and use calculators and computers to solve problems in school and in practical situations.

***NOTE: The "e.g.'s" are meant as examples only. There has been no attempt to identify all possible items, but rather to give guidance to the teacher as to the general intent of the standards and benchmarks.***

*As a result of their schooling, students will be able to:*

| ACADEMIC STANDARD | EARLY ELEMENTARY LEARNING BENCHMARKS | LATE ELEMENTARY LEARNING BENCHMARKS |
|---|---|---|
| **A. Demonstrate knowledge and use of numbers and their relations and representations in a broad range of settings from theoretical to practical.** | **6.A.1a** Identify and compare whole numbers using the symbols <, >, or =, and the words "greater than", "less than", or "equal to", applying counting, grouping and place value concepts.<br>**6.A.1b** Identify and compare fractions using concrete materials. | **6.A.2** Compare and order whole numbers, fractions and decimals, using concrete materials, drawings and mathematical symbols. |
| **B. Investigate, represent and solve problems using number facts, operations (addition, subtraction, multiplication, division), algorithms and relationships.** | **6.B.1a** Solve a wide variety of one- and two-step problems using the basic operations (addition, subtraction, multiplication and division) with whole numbers.<br>**6.B.1b** Determine and use appropriate operation(s) to solve problems.<br>**6.B.1c** Demonstrate, orally and in writing, various approaches to solve problems as individuals and as members of a problem-solving group. | **6.B.2a** Solve a wide variety of one- and two-step problems involving single- and multi-digit whole numbers, fractions and decimals using the basic operations (addition, subtraction, multiplication, division).<br>**6.B.2b** Demonstrate, orally and in writing, various approaches to solve problems, noting the relative promise of each approach, as individuals and as members of a problem-solving group. |

*Continued on page 30*

| MIDDLE/JUNIOR HIGH SCHOOL LEARNING BENCHMARKS | EARLY HIGH SCHOOL LEARNING BENCHMARKS | LATE HIGH SCHOOL LEARNING BENCHMARKS | NOTES |
|---|---|---|---|
| **6.A.3** Describe numbers, orally and in writing, in a variety of equivalent forms, (e.g., integers, fractions, decimals, exponential, scientific notation). | **6.A.4** Identify and apply the properties of the real number system and the properties of special numbers (e.g., $i$, $\pi$, square roots) through technology and applications. | **6.A.5** Perform operations on complex numbers and express results in the simplest form using contemporary technology. | |
| **6.B.3a** Solve practical problems involving whole numbers, integers and rational numbers; communicate the solutions orally and in writing as individuals and as members of a problem-solving group.<br>**6.B.3b** Apply primes, factors, divisors, multiples, common factors and common multiples in solving problems.<br>**6.B.3c** Identify and apply real numbers, including $\pi$, squares, and square roots. | **6.B.4** Select and use appropriate arithmetic operations in given situations, and apply criteria to verify the results using contemporary technology. | **6.B.5** Identify and apply numbers expressed in exponential, logarithmic and scientific notation; communicate results, orally and in writing, using contemporary technology. | |

# STATE GOAL 6 *Continued*

Demonstrate a knowledge and sense of numbers and their representations, including basic operations (addition, subtraction, multiplication, division), ratios and proportions, by using multiple ways of obtaining exact values and estimates to understand patterns of numbers and their applications.

***As a result of their schooling, students will be able to:***

| ACADEMIC STANDARD | EARLY ELEMENTARY LEARNING BENCHMARKS | LATE ELEMENTARY LEARNING BENCHMARKS |
|---|---|---|
| **C. Solve problems using multiple approaches to computation including estimation, mental mathematics, paper-and-pencil methods and technology.** | **6.C.1a** Solve problems with whole numbers including selecting computational procedures (e.g., estimation, mental math, paper-and-pencil methods, and calculators and other technologies).<br>**6.C.1b** Show evidence that whole number computational results are correct or that estimates are reasonable. | **6.C.2a** Solve problems with whole numbers, fractions and decimals including selecting the computational procedures (e.g., estimation, mental math, paper-and-pencil methods, calculators and other technologies).<br>**6.C.2b** Show evidence that computational results using whole numbers, fractions and decimals are correct or that estimates are reasonable. |
| **D. Solve problems involving the comparisons of quantities using ratios, proportions and percents.** | **6.D.1** Compare sets of objects orally and in writing. | **6.D.2** Describe and correlate two sets of data using ratios, and appropriate notations such as a/b, a to b, and a:b. |

*NOTE: The "e.g.'s" are meant as examples only. There has been no attempt to identify all possible items, but rather to give guidance to the teacher as to the general intent of the standards and benchmarks.*

| MIDDLE/JUNIOR HIGH SCHOOL LEARNING BENCHMARKS | EARLY HIGH SCHOOL LEARNING BENCHMARKS | LATE HIGH SCHOOL LEARNING BENCHMARKS | NOTES |
|---|---|---|---|
| **6.C.3a** Solve problems with whole numbers, fractions, decimals, percents and proportions including selecting computational procedures (e.g., estimation, mental math, paper-and-pencil methods, calculators, computers).<br>**6.C.3b** Show evidence that computational results using whole numbers, fractions, decimals, percents and proportions are correct or that estimates are reasonable. | **6.C.4** Identify the difference between exact values and approximations and determine which is appropriate for a given situation; present results orally and in writing. | **6.C.5** Describe, orally and in writing, the amount of error that may exist in a computation using estimates. | |
| **6.D.3** Apply ratios and proportions, primes, factors and multiples to solve practical problems. | **6.D.4** Solve problems involving similarity (e.g., simple and compound interest, discounts and commissions) and probability (e.g., growth patterns, error tolerance) using ratios, proportions and percents. | **6.D.5** Compare and contrast numerical and geometric patterns of growth. | |

# STATE GOAL 7

**Make, use and estimate measurements of objects, amounts and relationships and determine tolerable levels of error.**

### WHY THIS GOAL IS IMPORTANT

Understanding time, money, distance, area and volume means understanding measurement. This is not only a daily skill, but also one that connects mathematical thinking with other academic fields. It includes the ability to estimate and to recognize when a measurement is "good enough" or when greater levels of accuracy are needed. Students must be able to use standard instruments (rulers, volume measures, timers and others) and techniques and the increasingly sophisticated means of measurement (often via computer) that are becoming available.

***NOTE: The "e.g.'s" are meant as examples only. There has been no attempt to identify all possible items, but rather to give guidance to the teacher as to the general intent of the standards and benchmarks.***

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*As a result of their schooling, students will be able to:*

| ACADEMIC STANDARD | EARLY ELEMENTARY LEARNING BENCHMARKS | LATE ELEMENTARY LEARNING BENCHMARKS |
|---|---|---|
| **A. Measure and compare quantities using appropriate units, instruments and methods.** | **7.A.1a** Measure length, liquid volume and weight/mass with customary and metric systems.<br>**7.A.1b** Measure time using instruments (e.g., clocks, calendars) and units (e.g., seconds, days, years).<br>**7.A.1c** Identify coins and describe the relationship between them.<br>**7.A.1d** Read temperatures to the nearest degree from a Celsius and a Fahrenheit thermometer. | **7.A.2a** Compare and convert units of measures for length, weight/mass, and volume within the customary and metric systems.<br>**7.A.2b** Calculate results for monetary problems involving dollars and cents. |
| **B. Estimate measurements and determine tolerable levels of error in measurements.** | **7.B.1** Given a problem, describe possible methods for estimating a given measure as individuals and as members of a group. | **7.B.2a** Communicate, verbally and in writing, possible methods for estimating a given measure, selecting proper units in both customary and metric systems individually and as members of a group.<br>**7.B.2b** Estimate conversions between units in the customary and metric systems. |

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*Continued on page 34*

| MIDDLE/JUNIOR HIGH SCHOOL LEARNING BENCHMARKS | EARLY HIGH SCHOOL LEARNING BENCHMARKS | LATE HIGH SCHOOL LEARNING BENCHMARKS | NOTES |
|---|---|---|---|
| **7.A.3** Apply the concepts and attributes of length, capacity, weight/mass, perimeter, area, volume, time, temperature and angle measures in practical situations. | **7.A.4a** Apply units, domains/ranges and scales to describe and compare functions, numerical data and physical objects.<br>**7.A.4b** Apply formulas in a wide variety of measurement applications (e.g., perimeter, area, volume, angle, time, temperature, mass, speed, density, monetary values). | | |
| **7.B.3a** Estimate and apply measurement for description and comparison, constructing special measures where needed, individually and as members of a group.<br>**7.B.3b** Select and apply instruments and units of measure to the degree of accuracy required in a particular situation. | **7.B.4** Measure quantity and value (e.g., speed, force, slope) using instruments including rulers, protractors, scientific instrumentation, calculators and computers, individually and as members of a group. | **7.B.5** Estimate area, volume or capacity of an irregular region, individually and as members of a group. | |

## STATE GOAL 7 Continued

Make, use and estimate measurements of objects, amounts and relationships and determine tolerable levels of error.

*As a result of their schooling, students will be able to:*

| ACADEMIC STANDARD | EARLY ELEMENTARY LEARNING BENCHMARKS | LATE ELEMENTARY LEARNING BENCHMARKS |
|---|---|---|
| **C. Apply appropriate instruments, scales and formulas to solve problems and interpret results.** | **7.C.1a** Design a simple scale drawing.<br>**7.C.1b** Use measurement instruments to find perimeter and area of physical objects. | **7.C.2a** Describe relationships in a simple scale drawing.<br>**7.C.2b** Approximate relationships between measurements expressed in different systems (e.g., temperature, weight, volume).<br>**7.C.2c** Use measurement instruments in a problem context to draw figures with given perimeters and areas. |

***NOTE:** The "e.g.'s" are meant as examples only. There has been no attempt to identify all possible items, but rather to give guidance to the teacher as to the general intent of the standards and benchmarks.*

| MIDDLE/JUNIOR HIGH SCHOOL LEARNING BENCHMARKS | EARLY HIGH SCHOOL LEARNING BENCHMARKS | LATE HIGH SCHOOL LEARNING BENCHMARKS | NOTES |
|---|---|---|---|
| **7.C.3a** Given a situation, construct a simple scale drawing. | **7.C.4a** Make indirect measurements using proportional reasoning. | **7.C.5a** Apply nonlinear scales (e.g., Richter, decibel, pH) to solve practical problems. | |
| **7.C.3b** Convert a simple scale drawing from one scale to another. | **7.C.4b** Interpret complex scale drawings including maps, globes and blueprints. | **7.C.5b** Analyze dimensions (e.g., linear measurements, area measurements, volume measurements) in applied measurement problems using conversion ratios within and between measurement systems. | |
| **7.C.3c** Use concrete and graphic models to find perimeters, areas, surface areas and volumes of two- and three-dimensional regions. | **7.C.4c** Convert within and between measurement systems and monetary systems using technology where appropriate. | **7.C.5c** Measure inaccessible distances and determine derived measures such as density by using proportional reasoning and indirect measurements, including applications of trigonometric ratios. | |
| | **7.C.4d** Determine how changes in one measure may affect other measures (e.g., what happens to the volume and surface area of a cube when the side of the cube is halved). | | |

# STATE GOAL 8

Identify and describe patterns and relationships in actual data, as well as solve problems and predict results using algebraic methods and symbols, tables, graphs, calculators and computers.

### WHY THIS GOAL IS IMPORTANT

The algebraic approach is one of the central ways in which we represent and solve problems involving quantities. This approach can be used with problems as diverse as finding pricing patterns for goods and services, describing the behavior of a car as it speeds up or slows down, or understanding the changes in two chemicals as they react with each other. Students should be able to use algebraic methods to create tables and graphs. This activity should mirror the adult workplace, involving paper-and-pencil methods as well as calculators and computers.

***NOTE: The "e.g.'s" are meant as examples only. There has been no attempt to identify all possible items, but rather to give guidance to the teacher as to the general intent of the standards and benchmarks.***

*As a result of their schooling, students will be able to:*

| ACADEMIC STANDARD | EARLY ELEMENTARY LEARNING BENCHMARKS | LATE ELEMENTARY LEARNING BENCHMARKS |
|---|---|---|
| **A. Identify numerical relationships using variables and patterns.** | **8.A.1a** Identify and describe simple patterns.<br>**8.A.1b** Expand geometric and simple numeric patterns (e.g., odd/even, multiples of 5 and 5).<br>**8.A.1c** Apply the concepts and symbols for equality and inequality.<br>**8.A.1d** Write numerical sentence boxes to represent unknowns in a problem situation. | **8.A.2a** Identify and describe complex patterns.<br>**8.A.2b** Extend, create and describe complex geometric and numeric patterns (e.g., perfect squares, multiples of 2, negative integers).<br>**8.A.2c** Write and solve open number sentences using variables and write narrative descriptions of the open sentences.<br>**8.A.2d** Represent equations with objects and pictures.<br>**8.A.2e** Describe relationships using tables, graphs, symbols and words. |
| **B. Analyze and describe numerical relationships using a variety of representations.** | **8.B.1a** Solve problems involving pattern identification and completion of patterns.<br>**8.B.1b** Extend a number or picture pattern individually and as members of a group. | **8.B.2a** Analyze a geometric pattern and express the results numerically, orally and in written text.<br>**8.B.2b** Use graphing calculators, computer modeling and telecommunications to collect data, analyze information and graphically represent numerical relationships and patterns as individuals and as members of a group. |

*Continued on page 38*

| MIDDLE/JUNIOR HIGH SCHOOL LEARNING BENCHMARKS | EARLY HIGH SCHOOL LEARNING BENCHMARKS | LATE HIGH SCHOOL LEARNING BENCHMARKS | NOTES |
|---|---|---|---|
| **8.A.3a** Apply the basic arithmetic operations and number properties (commutative, associative, distributive, transitive, identity, inverse, order of operations, and zero) to solve problems.<br>**8.A.3b** Solve problems using linear expressions, equations and inequalities. | **8.A.4** Analyze terminating and repeating patterns, represent situations and describe properties using mathematical expressions, variables and operations. | **8.A.5** Solve various mathematical problems using models that employ variables and patterns. | |
| **8.B.3** Predict and analyze functional relationships; make generalizations based on observed patterns; and communicate findings with tables, graphs and rules for patterns, using both traditional means and contemporary technologies, individually and as members of a group. | **8.B.4a** Represent and translate algebraic concepts and relationships with words, diagrams, graphs, tables, physical models, spreadsheets, vectors, matrices, equations and inequalities, individually and as members of a group.<br>**8.B.4b** Identify and apply basic functions (e.g., absolute value, linear, quadratic, exponential and step functions) to describe numerical relationships. | **8.B.5** Identify and apply functions (e.g., exponential, inverse, radical, quadratic and higher degree polynomial, rational, parametric, polar, logarithmic, trigonometric, step and piece-wise functions) to describe numerical relationships, individually and as members of a group. | |

## STATE GOAL 8 *Continued*

Identify and describe patterns and relationships in actual data, as well as solve problems and predict results using algebraic methods and symbols, tables, graphs, calculators and computers.

***As a result of their schooling, students will be able to:***

| ACADEMIC STANDARD | EARLY ELEMENTARY LEARNING BENCHMARKS | LATE ELEMENTARY LEARNING BENCHMARKS |
|---|---|---|
| **C. Solve problems using systems of numbers and their properties.** | **8.C.1** Describe, orally and in writing, the basic arithmetic operations using hands-on activities and drawings. | **8.C.2** Explain and apply the basic arithmetic operations and number properties (e.g., commutative, associative and distributive, transitive). |
| **D. Apply algebraic concepts and procedures to represent, simplify and solve problems.** | **8.D.1** Solve one-step linear equations with one variable with and without concrete objects. | **8.D.2** Solve linear equations involving whole numbers. |

***NOTE:*** ***The "e.g.'s" are meant as examples only. There has been no attempt to identify all possible items, but rather to give guidance to the teacher as to the general intent of the standards and benchmarks.***

| MIDDLE/JUNIOR HIGH SCHOOL LEARNING BENCHMARKS | EARLY HIGH SCHOOL LEARNING BENCHMARKS | LATE HIGH SCHOOL LEARNING BENCHMARKS | NOTES |
|---|---|---|---|
| **8.C.3** Explain and apply the basic arithmetic operations and number properties, extended to identity, order of operations, and zero. | **8.C.4** Apply the properties of numbers and operations (e.g., associative, commutative, distributive, transitive, identities and inverses) in algebraic settings derived from economics, business and industry and other practical situations. | **8.C.5a** Analyze and report the effects of changing coefficients, exponents and other parameters on functions and their graphs.<br>**8.C.5b** Apply algebraic properties and procedures with structures such as matrices, vectors, functions and sequences using data found in business, industrial and consumer situations. | |
| **8.D.3a** Solve problems using symbolic representations of variables, expressions, equations and inequalities using graphs and tables.<br>**8.D.3b** Propose and solve problems using proportions, formulas and functions.<br>**8.D.3c** Describe concepts of exponents, perfect squares and square roots, using calculators. | **8.D.4** Formulate and solve linear and quadratic equations and linear inequalities algebraically and investigate nonlinear situations through graphs, tables and computer applications. | **8.D.5** Formulate and solve nonlinear equations and systems including problems involving inverse variation and exponential and logarithmic growth and decay using graphing, symbol manipulation and computer applications. | |

# STATE GOAL 9

Analyze, categorize and draw conclusions about objects and spatial relationships using geometric methods and drawings, sketches, graphs, models, symbols, calculators and computers

**WHY THIS GOAL IS IMPORTANT**

Geometry provides important methods for reasoning and solving problems in one, two or three dimensions. Its applications are widespread in construction, mapping, architecture and elsewhere. Knowledge of geometry should include trigonometric functions, graphs, sets, networks, vectors and other factors. Use of this knowledge in science, engineering and technical fields requires the use of calculators and computers.

***NOTE: The "e.g.'s" are meant as examples only. There has been no attempt to identify all possible items, but rather to give guidance to the teacher as to the general intent of the standards and benchmarks.***

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*As a result of their schooling, students will be able to:*

| ACADEMIC STANDARD | EARLY ELEMENTARY LEARNING BENCHMARKS | LATE ELEMENTARY LEARNING BENCHMARKS |
|---|---|---|
| **A. Demonstrate and apply basic geometric concepts in one, two and three dimensions.** | **9.A.1a** Name familiar one-, two- and three-dimensional shapes (e.g., segments/lines/planes, circle/sphere, square/cube, triangle/pyramid, rectangle/rectangular solid).<br>**9.A.1b** Draw two- and three-dimensional shapes.<br>**9.A.1c** Identify and describe practical examples of geometric figures. | **9.A.2a** Draw and build one-, two- and three-dimensional geometric figures.<br>**9.A.2b** Identify and describe how geometric figures are used in practical settings (e.g., construction, art, advertising).<br>**9.A.2c** Use calculators and computers to investigate and represent geometric relationships, patterns, symmetry and design in two and three dimensions. |
| **B. Identify, describe, classify and compare relationships within and among one-, two- and three-dimensional figures.** | **9.B.1a** Identify and describe characteristics, similarities and differences of geometric shapes.<br>**9.B.1b** Sort, classify and compare familiar shapes.<br>**9.B.1c** Identify and construct figures, symmetric along a line, using various concrete materials, individually and as members of a group. | **9.B.2a** Identify similarities and differences among one-, two- and three-dimensional shapes.<br>**9.B.2b** Identify properties of geometric figures (e.g., parallel, perpendicular, similar, congruent, line symmetry). |

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*Continued on page 42*

| MIDDLE/JUNIOR HIGH SCHOOL LEARNING BENCHMARKS | EARLY HIGH SCHOOL LEARNING BENCHMARKS | LATE HIGH SCHOOL LEARNING BENCHMARKS | NOTES |
|---|---|---|---|
| **9.A.3a** Demonstrate spatial sense by drawing or constructing two- and three-dimensional geometric figures including prisms, pyramids, cylinders, and cones.<br>**9.A.3b** Design transformation images of shapes, figures and models.<br>**9.A.3c** Analyze objects using tessellations, symmetry, congruence, similarity, scale, perspective, angles and networks and identify their applications in practical situations (e.g., tiling, art, fabric design). | **9.A.4a** Construct a model of a three-dimensional figure from a two-dimensional drawing and a two-dimensional representation of a three-dimensional object, with and without technology.<br>**9.A.4b** Make transformation images, perspective drawings, tessellations and scale drawings, with and without technology. | **9.A.5** Use geometric figures and their properties to model practical applications in various disciplines (e.g., architecture, arts, sciences). | |
| **9.B.3** Identify, describe, classify and compare two- and three-dimensional geometric shapes, figures and models according to their attributes using contemporary technology. | **9.B.4** Use contemporary technology to recognize and apply relationships within and between geometric figures using classifications (e.g., parallel, perpendicular, similar, congruent, symmetric). | **9.B.5** Use contemporary technology to construct two- and three-dimensional models of objects that have practical and functional use. | |

# STATE GOAL 9 *Continued*

Analyze, categorize and draw conclusions about objects and spatial relationships using geometric methods and drawings, sketches, graphs, models, symbols, calculators and computers.

MATHEMATICS

***As a result of their schooling, students will be able to:***

| ACADEMIC STANDARD | EARLY ELEMENTARY LEARNING BENCHMARKS | LATE ELEMENTARY LEARNING BENCHMARKS |
|---|---|---|
| **C. Construct convincing arguments and proofs to represent, transform and solve problems.** | **9.C.1** Draw logical conclusions about geometric figures and patterns, using hands-on activities, diagrams and technology and communicate the reasoning. | **9.C.2** Formulate logical arguments using hands-on activities, diagrams and technology. |
| **D. Apply trigonometric properties to solve problems.** | | |

***NOTE: The "e.g.'s" are meant as examples only. There has been no attempt to identify all possible items, but rather to give guidance to the teacher as to the general intent of the standards and benchmarks.***

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| MIDDLE/JUNIOR HIGH SCHOOL LEARNING BENCHMARKS | EARLY HIGH SCHOOL LEARNING BENCHMARKS | LATE HIGH SCHOOL LEARNING BENCHMARKS | NOTES |
|---|---|---|---|
| **9.C.3a** Construct and develop logical arguments about problems involving geometry.<br>**9.C.3b** Develop and solve problems using geometric relationships and models, with and without technology. | **9.C.4a** Construct and test logical arguments for geometric situations using technology where appropriate.<br>**9.C.4b** Construct and communicate convincing arguments (both formal and informal) for geometric situations.<br>**9.C.4c** Develop and apply the concepts of Euclidean and non-Euclidean geometry to transform and solve problems. | **9.C.5a** Perform and describe an original investigation of a geometric problem and verify the analysis and conclusions to an audience.<br>**9.C.5b** Apply physical models, graphs, coordinate systems, networks, vectors and other geometric methods, with and without technology, to develop solutions for games, problems and puzzles in applied situations and communicate results orally and in writing. | |
| **9.D.3** Compute measures of sides and angles using proportions and right-triangle relationships. | **9.D.4** Analyze and solve problems involving triangles using trigonometric ratios (e.g., biorhythms, sound waves, tide variations) and communicate results orally and in writing. | **9.D.5** Analyze and solve problems (e.g., engineering, survey) involving periodic patterns using circular functions and communicate results orally and in writing. | |

MATHEMATICS

# STATE GOAL 10

Collect, organize and analyze data using statistical methods and tables, charts, graphs, calculators and computers to represent processes, to predict results and to interpret uncertainty and chance in practical applications.

### WHY THIS GOAL IS IMPORTANT

The ability to deal with data—opinion polls, stock prices, tax rates, crime statistics, scientific studies, weather reports—grows more important each day. Students must be able to sort through data, make sense of the variables and patterns, and judge the reasonableness of any claims and interpretations that are being made. Even very young students can count objects and show their findings on charts and graphs. Older students gather, display and analyze data, turning it into information and knowledge applicable to concrete questions. At higher levels, students should be able to find sources of error and bias and to communicate and defend their own conclusions based on data and logical reasoning.

***NOTE: The "e.g.'s" are meant as examples only. There has been no attempt to identify all possible items, but rather to give guidance to the teacher as to the general intent of the standards and benchmarks.***

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*As a result of their schooling, students will be able to:*

| ACADEMIC STANDARD | EARLY ELEMENTARY LEARNING BENCHMARKS | LATE ELEMENTARY LEARNING BENCHMARKS |
|---|---|---|
| **A. Organize, represent, analyze and make conclusions from existing data.** | **USING DATA PROVIDED:**<br>**10.A.1a** Organize and display data using pictures, tallies, tables, charts or bar graphs.<br>**10.A.1b** Describe characteristics of the data.<br>**10.A.1c** Report verbally and/or in writing the results that answer questions about the data.<br>**10.A.1d** Make predictions based on data trends. | **USING DATA PROVIDED:**<br>**10.A.2a** Organize and display data using pictures, tallies, tables, charts, bar graphs, circle graphs, line graphs, line plots, stem-and-leaf plots.<br>**10.A.2b** Describe the data using mean, median, mode and range as appropriate with and without technology and report verbally and/or in writing the results, answering posed questions.<br>**10.A.2c** Make predictions and related decisions based on that data, verifying reasoning. |
| **B. Formulate questions, design data collection methods, gather and analyze data and communicate findings.** | **10.B.1a** Formulate questions of interest related to data.<br>**10.B.1b** Explain what data could help answer a given question and design surveys or experiments to gather data.<br>**10.B.1c** Collect, organize and describe data using pictures, tallies, tables, charts or bar graphs and describe characteristics of the data.<br>**10.B.1d** Analyze data and communicate the results verbally or in writing. | **10.B.2a** Formulate questions of interest and determine and select ways of systematically collecting data appropriate to the questions.<br>**10.B.2b** Gather, organize and display data using previous methods plus circle graphs, line graphs, line plots, stem-and-leaf plots.<br>**10.B.2c** Describe the data using mean, median, mode and range as appropriate, analyze the data and communicate the results verbally and in writing.<br>**10.B.2d** Predict results and/or make relevant decisions based on the data gathered. |

*Continued on page 46*

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| MIDDLE/JUNIOR HIGH SCHOOL LEARNING BENCHMARKS | EARLY HIGH SCHOOL LEARNING BENCHMARKS | LATE HIGH SCHOOL LEARNING BENCHMARKS | NOTES |
|---|---|---|---|
| **USING DATA PROVIDED:**<br>**10.A.3a** Construct, read and interpret tables, graphs and charts as a means to organize and represent data.<br>**10.A.3b** Compare the mean, median, mode and range with and without technology.<br>**10.A.3c** Test the reasonableness of an argument based on data and communicate findings. | **USING DATA PROVIDED:**<br>**10.A.4a** Represent and organize data by creating lists, charts, tables, frequency distributions, graphs and plots.<br>**10.A.4b** Analyze data using mean, median, mode, range, variance and standard deviation of a data set, with and without the use of technology.<br>**10.A.4c** Make predictions using interpolation, extrapolation, regression and estimation, with and without the use of technology. | **USING DATA PROVIDED:**<br>**10.A.5** Construct a statistics-based presentation, individually and as members of a group, to communicate the results of a project. | |
| **10.B.3** Formulate questions, devise and conduct experiments or simulations, gather data, draw conclusions and communicate results to an audience, using traditional methods and contemporary technologies. | **10.B.4** Design and execute surveys or experiments, gather data to answer relevant questions, and communicate results and conclusions to an audience. | **10.B.5** Design a statistical experiment to answer a question about a realistic situation, conduct the experiment, use inferential statistics to interpret the data, and communicate the results, individually and as members of a group. | |

# STATE GOAL 10

*Continued*

Collect, organize and analyze data using statistical methods and tables, charts, graphs, calculators and computers to represent processes, to predict results and to interpret uncertainty and chance in practical applications.

***As a result of their schooling, students will be able to:***

| ACADEMIC STANDARD | EARLY ELEMENTARY LEARNING BENCHMARKS | LATE ELEMENTARY LEARNING BENCHMARKS |
|---|---|---|
| **C. Determine and describe the probability of an event.** | **10.C.1a** Describe the concept of probability in relationship to likelihood and chance.<br>**10.C.1b** Systematically list all possible outcomes of a simple one-stage experiment (e.g., the flip of one coin, the toss of one die, the spin of a spinner). | **10.C.2a** Calculate the probability of a simple event.<br>**10.C.2b** Compare the likelihood of events in terms of certain, more likely, less likely, or impossible.<br>**10.C.2c** Determine the probability of an event involving "and", "or", or "not". |

***NOTE: The "e.g.'s" are meant as examples only. There has been no attempt to identify all possible items, but rather to give guidance to the teacher as to the general intent of the standards and benchmarks.***

| MIDDLE/JUNIOR HIGH SCHOOL LEARNING BENCHMARKS | EARLY HIGH SCHOOL LEARNING BENCHMARKS | LATE HIGH SCHOOL LEARNING BENCHMARKS | NOTES |
|---|---|---|---|
| **10.C.3a** Determine the probability and odds of events using fundamental counting principles.<br>**10.C.3b** Analyze problem situations (e.g., board games, grading scales) and make predictions about results. | **10.C.4a** Propose and solve problems of chance using the principles of probability, including conditional settings.<br>**10.C.4b** Design simulations to estimate probabilities, with and without technology.<br>**10.C.4c** Propose and interpret discrete probability distributions, with and without technology. | **10.C.5a** Compute conditional probabilities and the probabilities of independent events.<br>**10.C.5b** Compute probabilities in counting situations involving permutations and combinations.<br>**10.C.5c** Solve problems using the significance of randomness in calculating probabilities and interpreting statistics.<br>**10.C.5d** Make predictions using probability distributions, confirm or reject hypotheses, compare results to normal and bimodal distributions. | |

CROSSWALK

# APPENDIX A

# ENGLISH LANGUAGE ARTS

**The purpose of the crosswalk is to allow quick comparisons between the 1985 State Goals for Learning and the draft goals and academic standards for 1996. The 1996 draft goals and academic standards amplify and clarify the 1985 goals. It is the view of the writing teams that all of the essential elements from the 1985 state goals have been addressed in the draft goals or embedded in the 1996 draft goals and academic standards.**

The fundamentals of using language—reading, writing, listening, and speaking, as well as the study of literature—remain highlighted in the draft goals. Goal 5 attempts to move forward from the 1985 goals to address application of the fundamentals toward real-life situations such as research and the use of information. The 1996 goals, while accommodating a variety of teaching and learning styles, acknowledge that language processes develop in a dynamic, fluid manner.

*As a result of their schooling, students will be able to:*

**1985 STATE GOALS**

Understand how and why language functions and evolves.

Read, comprehend, interpret, evaluate and use written material.

**PROPOSED 1996 STATE GOAL & ACADEMIC STANDARDS**

**1** **Read with understanding and fluency.**

A. Apply word analysis and vocabulary skills to comprehend text.
B. Apply reading strategies to improve fluency and understanding.
C. Demonstrate comprehension of a broad range of reading materials.

**1985 STATE GOAL**

Understand the various forms of significant literature representative of different cultures, eras and ideas.

**PROPOSED 1996 STATE GOAL & ACADEMIC STANDARDS**

**2** **Understand the expressed meaning in literature representative of various societies, eras and ideas.**

A. Demonstrate an understanding of literary elements and techniques.
B. Explain, analyze and interpret the expressed meaning in literature representing various societies, eras and ideas.

**1985 STATE GOAL**

Write standard English in a grammatical, well-organized and coherent manner for a variety of purposes.

**PROPOSED 1996 STATE GOAL & ACADEMIC STANDARDS**

**3** Write to communicate for a variety of purposes.

A. Use correct grammar, spelling, punctuation, capitalization and sentence structure.
B. Compose well-organized and coherent writing for specific purposes and audiences.
C. Communicate ideas in writing to accomplish a variety of purposes.

**1985 STATE GOALS**

Listen critically and analytically.

Use spoken language effectively in formal and informal situations to communicate ideas and information and to ask and answer questions.

**PROPOSED 1996 STATE GOAL & ACADEMIC STANDARDS**

**4** Listen and speak effectively in a variety of situations.

A. Listen effectively in formal and informal situations.
B. Speak effectively using language appropriate to the situation and audience.

**1985 STATE GOAL**

Understand the various forms of significant literature representative of different cultures, eras and ideas.

**PROPOSED 1996 STATE GOAL & ACADEMIC STANDARDS**

**5** Use reading, writing, listening and speaking skills to research and apply information for specific purposes.

A. Locate, acquire and organize information from various sources to answer questions and solve problems.
B. Analyze and evaluate information acquired from various sources.
C. Apply acquired information, concepts and ideas.

# MATHEMATICS

In 1985, there were seven state goals for learning in mathematics; this document proposes five. The mathematics writing team concluded that understanding and use of ratios and percentages are subsets of computation and having a sense of numbers and included those topics under that goal. Another 1985 goal stated that students would be able to use mathematics skills to estimate, approximate and predict outcomes and to judge reasonableness of results. The team concluded that these important abilities should be applied and included across all mathematics goals.

*As a result of their schooling, students will be able to:*

| 1985 STATE GOALS | PROPOSED 1996 STATE GOAL & ACADEMIC STANDARDS |
|---|---|
| Perform the computations of addition, subtraction, multiplication and division using whole numbers, integers, fractions and decimals.<br>Understand and use ratios and percentages.<br>Use mathematical skills to estimate, approximate and predict outcomes and to judge reasonableness of results. | **6** Demonstrate a knowledge and sense of numbers and their representations, including basic operations (addition, subtraction, multiplication, division), ratios and proportions, by using multiple ways of obtaining exact values and estimates to understand patterns involving numbers and their applications.<br>A. Demonstrate knowledge and use of numbers and their relations and representations in a broad range of settings from theoretical to practical.<br>B. Investigate, represent and solve problems using number facts, operations (addition, subtraction, multiplication, division), algorithms and relationships.<br>C. Solve problems using multiple approaches to computation including estimation, mental mathematics, paper-and-pencil methods and technology.<br>D. Solve problems involving the comparisons of quantities using ratios, proportions and percents. |

| 1985 STATE GOALS | PROPOSED 1996 STATE GOAL & ACADEMIC STANDARDS |
|---|---|
| Make and use measurements, including those of area and volume.<br>Use mathematical skills to estimate, approximate and predict outcomes and to judge reasonableness of results. | **7** Make, use and estimate measurements of objects, amounts and relationships and determine tolerable levels of error.<br>A. Measure and compare quantities using appropriate units, instruments and methods.<br>B. Estimate measurements and determine tolerable levels of error in measurements.<br>C. Apply appropriate instruments, scales and formulas to solve problems and interpret results. |

**1985 STATE GOALS**

Identify, analyze and solve problems using algebraic equations, inequities, functions and their graphs.

Use mathematical skills to estimate, approximate and predict outcomes and to judge reasonableness of results.

**PROPOSED 1996 STATE GOAL & ACADEMIC STANDARDS**

**8** Identify and describe patterns and relationships in actual data, as well as solve problems and predict results using algebraic methods and symbols, tables, graphs, calculators and computers.

A. Identify numerical relationships using variables and patterns.
B. Analyze and describe numerical relationships using a variety of representations.
C. Solve problems using systems of numbers and their properties.
D. Apply algebraic concepts and procedures to represent, simplify and solve problems.

**1985 STATE GOALS**

Understand and apply geometric concepts and relations in a variety of forms.

Use mathematical skills to estimate, approximate and predict outcomes and to judge reasonableness of results.

**PROPOSED 1996 STATE GOAL & ACADEMIC STANDARDS**

**9** Analyze, categorize and draw conclusions about objects and spatial relationships using geometric methods and drawings, sketches, graphs, models, symbols, calculators and computers.

A. Demonstrate and apply basic geometric concepts in one, two and three dimensions.
B. Identify, describe, classify and compare relationships within and among one-, two- and three-dimensional figures.
C. Construct convincing arguments and proofs to represent, transform and solve problems.
D. Apply trigonometric properties to solve problems.

**1985 STATE GOALS**

Understand and use methods of data collection and analysis, including tables, charts and comparisons.

Use mathematical skills to estimate, approximate and predict outcomes and to judge reasonableness of results.

**PROPOSED 1996 STATE GOAL & ACADEMIC STANDARDS**

**10** Collect, organize and analyze data using statistical methods and tables, charts, graphs, calculators and computers to represent processes, to predict results and to interpret uncertainty and chance in practical applications.

A. Organize, represent, analyze and make conclusions from existing data.
B. Formulate questions, design data collection methods, gather and analyze data and communicate findings.
C. Determine and describe the probability of an event.

# SCIENCE

In this draft, proposed Goal 11 consolidates two 1985 goals addressing scientific research and methods and unifies the processes with the purposes of the scientific method. By emphasizing inquiry, it promotes a deeper understanding of research methods and applications. Proposed goal 12 focuses on unifying concepts and knowledge in the sciences, fostering greater depth of understanding across and beyond traditional science technology disciplines. The relationships among science and society can be understood more clearly through the wording of proposed Goal 13. Within these proposed goals, emphasis is equally distributed among process (Goal 11), content (Goal 12) and relationships (Goal 13).

*As a result of their schooling, students will be able to:*

| 1985 STATE GOALS | PROPOSED 1996 STATE GOAL & ACADEMIC STANDARDS |
|---|---|
| Have a working knowledge of the principles of scientific research and their application in simple research projects.<br>Have a working knowledge of the processes, techniques, methods, equipment and available technology of science. | **11** Understand and apply the methods of scientific inquiry and technological design to investigate questions, solve problems and analyze claims.<br>A. Explain the principles and practices of scientific research.<br>B. Apply the steps and methods of scientific inquiry to conduct experiments and investigate research questions.<br>C. Apply the principles and methods of technological design to solve problems.<br>D. Assess the credibility of scientific claims. |

| 1985 STATE GOAL | PROPOSED 1996 STATE GOAL & ACADEMIC STANDARDS |
|---|---|
| Know the concepts and basic vocabulary of biological, physical and environmental sciences and the application to life and work in contemporary technological society. | **12** Understand the facts and unifying concepts of the life, physical and earth/space sciences.<br>A. Apply concepts of systems within the sciences.<br>B. Apply concepts of form and function within the sciences.<br>C. Apply concepts of change and constancy within the sciences.<br>D. Apply concepts of models and explanations within the sciences. |

## 1985 STATE GOALS

**Have a working knowledge** of the social and environmental implications and limitations of technological development.

Know the concepts and basic vocabulary of biological, physical and environmental sciences and the application to life and work in contemporary technological society.

## PROPOSED 1996 STATE GOAL & ACADEMIC STANDARDS

**13** **Understand connections and relationships among science,** technology and society.

A. Explain the historical development and importance of science and technology.

B. Explain conceptual relationships between science and technology.

C. Describe and analyze relationships among science, technology and society in practical situations.

# SOCIAL SCIENCE

The first 1985 goal for social science dealt with both civics and economics. These have been separated and more clearly defined in Goals 14 and 15 and their related academic standards. This approach will help students better understand the related but separate ideas in these two disciplines.

The 1985 goal that addressed application and decision making has been incorporated into the Applications of Learning and the standards and benchmarks under all 1996 goals for social science.

*As a result of their schooling, students will be able to:*

| 1985 STATE GOAL | PROPOSED 1996 STATE GOALS & ACADEMIC STANDARDS |
|---|---|
| Understand and analyze comparative political and economic systems, with an emphasis on the political and economic systems of the United States. | **14** Understand, analyze and compare political systems, with an emphasis on the United States.<br>A. Describe and explain basic principles of the United States government.<br>B. Compare and analyze the structures and functions of the political systems of Illinois, the United States and other nations.<br>C. Describe and explain election processes and responsibilities of citizens.<br>D. Analyze the roles and influences of individuals and interest groups in the political systems of Illinois, the United States and other nations.<br>E. Describe and explain United States foreign policy as it relates to other nations and international issues. |
| | **15** Understand, analyze and compare economic systems, with an emphasis on the United States.<br>A. Explain and compare how economic systems facilitate the exchange, production, distribution and consumption of goods and services.<br>B. Analyze the effects of scarcity and choice on consumers.<br>C. Analyze the effects of scarcity and choice on producers.<br>D. Explain how trade generates interdependence affecting the economies of nations. |

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### 1985 STATE GOAL

**Understand and analyze** events, trends, personalities and movements shaping the history of the world, the United States and Illinois.

### PROPOSED 1996 STATE GOAL & ACADEMIC STANDARDS

**16** Understand and analyze events, trends, individuals and movements shaping the history of Illinois, the United States and other nations.

A. Describe and explain contributions of selected individuals throughout history.
B. Explain the chronology and significance of major social, economic and political events throughout history.
C. Summarize and analyze historical relationships and developments leading to similarities and differences among people and societies throughout the world.
D. Explain the effects of urbanization, industrialization and technology on society and institutions throughout history.
E. Analyze the roles played by groups in developing a pluralistic society in the United States.

### 1985 STATE GOAL

**Demonstrate a knowledge** of world geography with emphasis on the United States.

### PROPOSED 1996 STATE GOAL & ACADEMIC STANDARDS

**17** Demonstrate a knowledge of world geography, as well as an understanding of the effects of geography on society, with an emphasis on the United States.

A. Locate, describe and explain places, regions and features on the earth using geographic terms, methods and representations.
B. Analyze and explain characteristics and interactions of the earth's physical systems.
C. Analyze and explain relationships between geographic factors and society.
D. Explain the historical significance of geography.

### 1985 STATE GOALS

**Demonstrate knowledge** of the basic concepts of the social sciences and how these help interpret human behavior.

Apply the skills and knowledge gained in the social sciences to decision making in life situations.

### PROPOSED 1996 STATE GOAL & ACADEMIC STANDARDS

**18** Understand, analyze and compare social systems, with an emphasis on the United States.

A. Identify and compare characteristics of culture as reflected in language, literature, the arts and traditions.
B. Analyze the roles of groups and institutions in relation to people and societies.

# PHYSICAL DEVELOPMENT & HEALTH

The 1985 goals for physical development and health varied greatly from the very broad to the very specific. The proposed 1996 goals and standards "smooth out" and organize student learning while updating the goals in light of the last decade of education research.

For example, personal fitness plans have been incorporated within the standards and benchmarks for proposed Goal 19.

Overall, physical development and health have become more interrelated in the new goals/standards structure, with general emphasis on promoting health and acquiring skills that will be valuable beyond the school setting.

*As a result of their schooling, students will be able to:*

**1985 STATE GOALS**

Demonstrate basic skills and physical fitness necessary to participate in a variety of conditioning exercises or leisure activities such as sports and dance.

Plan a personal physical fitness and health program.

**PROPOSED 1996 STATE GOAL & ACADEMIC STANDARDS**

**19** Understand concepts and acquire competent movement skills to engage in health-enhancing physical activity.

A. Demonstrate and analyze various movement concepts and applications.
B. Demonstrate knowledge of rules and strategies during physical activity.
C. Demonstrate physical competency in individual and team sports and recreational activities.

**1985 STATE GOAL**

Perform a variety of complex motor activities.

**PROPOSED 1996 STATE GOALS & ACADEMIC STANDARDS**

**20** Understand how to assess, achieve and maintain physical fitness for continuing health.

A. Know and apply the physiological principles and components of health-related fitness.
B. Assess individual fitness levels.
C. Set goals based on fitness data and develop, implement and monitor an individual fitness improvement plan.

**21** Develop team-building skills by working with others through physical activity.

A. Demonstrate responsibility during group physical activities.
B. Demonstrate participatory and leadership skills during planned group physical activity.

**1985 STATE GOALS**

Demonstrate a variety of basic life-saving activities.

Understand principles of nutrition, exercise, efficient management of emotional stress, positive self-concept development, drug use and abuse, and the prevention and treatment of illness.

**PROPOSED 1996 STATE GOAL & ACADEMIC STANDARDS**

**22** Understand principles of health promotion and the prevention and treatment of illness and injury.

A. Explain the basic principles of health promotion, illness prevention and safety.
B. Describe and explain the health influences among individuals, groups and communities.
C. Explain how the environment can affect health.

**1985 STATE GOAL**

Understand the physical development, structure and functions of the human body.

**PROPOSED 1996 STATE GOAL & ACADEMIC STANDARDS**

**23** Understand human body systems and factors that influence growth and development.

A. Describe and explain the structure and functions of the human body systems and how they interrelate.
B. Explain the effects of health-related actions on the body systems.
C. Describe factors that affect growth and development.

**1985 STATE GOAL**

Understand consumer health and safety, including environmental health.

**PROPOSED 1996 STATE GOAL & ACADEMIC STANDARDS**

**24** Promote and enhance health and well-being through the use of effective communication and decision-making skills.

A. Demonstrate procedures for positive communication, resolving differences and preventing violence.
B. Apply decision-making skills related to the protection and promotion of individual health.
C. Demonstrate skills essential to enhancing health and avoiding dangerous situations.

# FINE ARTS

The proposed goals simplify and clarify the language of the 1985 State Goals, with attention to relationships within the arts and to other disciplines. The addition of the standards for each goal will allow students and teachers to better organize and plan arts studies.

The proposed goals are intended to address the larger issues of how arts allow expression, convey meaning and reflect society and culture, rather than directing attention to smaller pieces of information such as identification of individual art works.

*As a result of their schooling, students will be able to:*

**1985 STATE GOAL**

Understand the principal sensory, formal, technical and expressive qualities of each of the arts.

**PROPOSED 1996 STATE GOAL & ACADEMIC STANDARDS**

**25** Understand the sensory elements, organizational principles and ideas expressed in and among the arts.

A. Describe, analyze and evaluate the sensory elements and organizational principles of works of art.
B. Define, analyze and evaluate how sensory elements and organizational principles are used to express ideas in the arts.
C. Compare and contrast similarities, differences and connections of sensory elements, organizational principles, and ideas expressed within and among the arts.

**1985 STATE GOALS**

Identify processes and tools required to produce visual art, music, drama and dance.

Demonstrate the basic skills necessary to participate in the creation and/or performance of one of the arts.

Describe the unique characteristics of each of the arts.

**PROPOSED 1996 STATE GOAL & ACADEMIC STANDARDS**

**26** Through creating and performing, understand how works of art are produced.

A. Demonstrate an understanding of how tools and processes are used in the arts.
B. Apply skills and knowledge necessary to create and perform in the arts.

**1985 STATE GOALS**

Identify significant works in the arts from major historical periods and how they reflect societies, cultures and civilizations, past and present.

Describe the unique characteristics of each of the arts.

**PROPOSED 1996 STATE GOAL & ACADEMIC STANDARDS**

**27** Understand the role of the arts in civilizations, past and present.

A. Analyze how the arts function in history, society and everyday life.
B. Analyze how the arts reflect history, society and everyday life.

CROSSWALK

# APPENDIX A

# FOREIGN LANGUAGES

*Foreign language is not a fundamental learning area as identified in the School Code, section 28-1. The foreign language goals, academic standards and learning benchmarks presented here are intended to be used as a resource for foreign language programs.*

Although Foreign Languages were not included in the 1985 State Goals for Learning, languages are being taught and learned in many Illinois schools. The proposed goals and standards focus on the study of the target language to communicate within and beyond the classroom, to understand the customs, arts, literature, history and geography of the target language, and to make connections and reinforce knowledge and skills across academic vocational and technical disciplines.

***As a result of their schooling, students will be able to:***

**1985 STATE GOAL**

There were no goals in 1985 for Foreign Languages.

**PROPOSED 1996 STATE GOALS & ACADEMIC STANDARDS**

**28** Use the target language to communicate within and beyond the classroom setting.
A. Understand oral communication in the target language.
B. Speak effectively in the target language in various settings.
C. Understand written passages in the target language.
D. Write effectively in the target language for a variety of purposes and audiences.

**29** Use the target language to develop an understanding of the customs, arts, literature, history and geography associated with the target language.
A. Demonstrate knowledge of manners and customs.
B. Demonstrate knowledge and understanding of the arts.
C. Demonstrate knowledge and understanding of literature and the media.
D. Demonstrate knowledge and understanding of history.
E. Demonstrate knowledge and understanding of demographics and geography.

**30** Use the target language to make connections and reinforce knowledge and skills across academic, vocational and technical disciplines.
A. Reinforce and further knowledge of other disciplines through the target language.
B. Demonstrate knowledge and understanding of a variety of career options.

PARTICIPANTS

# APPENDIX B

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**FEEDBACK**
**INSTRUMENT ONE**

# APPENDIX D

***Questions concerning this feedback instrument may be directed to your Regional Office of Education or the Illinois State Board of Education at 1-800-387-1470 or rschaljo@spr6.isbe.state.il.us***

Your feedback is vital. Given the scope and importance of the Illinois Academic Standards Project, this draft is being distributed statewide—to educators and others—for review and comment. Your observations will help make these standards a truly effective tool for teaching and learning. The teams who worked on the project have asked that you complete this instrument and return it by November 29, 1996.

*Please duplicate as needed.*

***SEND TO:***
**Academic Standards Project**
**Illinois State Board of Education**
**100 North First Street**
**Springfield, Illinois 62777-0001**

## RESPONDENT INFORMATION

**This response represents the opinion of (check one):**

☐ An individual ☐ A group (if group, how many?) ________

**Geographic Location:**

County ________________ (If Cook, Chicago?) ☐ Yes ☐ No

**Portion(s) of the Document Reviewed by Respondent(s):**

☐ Introduction
☐ English Language Arts
☐ Mathematics
☐ Science
☐ Social Science
☐ Physical Education/Health
☐ Fine Arts
☐ Foreign Languages

**Level(s) of Benchmarks Reviewed:**

☐ Early Elementary
☐ Late Elementary
☐ Middle/Jr. High
☐ Early High School
☐ Late High School

## RESPONDENT AFFILIATION

*(Check all that apply.)*

☐ **Parent**
☐ **Community Member**
☐ **Higher Education**
☐ **Corporate or Business Community**
☐ **School Board or Council Member (past or present)**
☐ **Student**
☐ **Other** ____________

**Teacher or Other Professional Staff**

☐ Elementary ☐ Middle/Jr. High ☐ High School
☐ Other ______________________________

**Administrator**

☐ School-Level ☐ District-Level ☐ Regional

## HELPFULNESS TO TEACHING AND LEARNING

Please circle the one response which most closely reflects your agreement or disagreement with the following statements regarding the draft Illinois Academic Standards:

**The Academic Standards have the potential to help**

| | Disagree | | No Opinion | | Agree |
|---|---|---|---|---|---|
| 1. improve student learning. | 1 | 2 | 3 | 4 | 5 |
| 2. clarify the aims and results of schooling. | 1 | 2 | 3 | 4 | 5 |
| 3. build a common understanding of the purpose of schooling among educators and the public. | 1 | 2 | 3 | 4 | 5 |
| 4. refine assessment of student learning. | 1 | 2 | 3 | 4 | 5 |
| 5. report student achievement and success. | 1 | 2 | 3 | 4 | 5 |
| 6. build a practical, yet effective accountability system. | 1 | 2 | 3 | 4 | 5 |
| 7. connect important learning within and among learning areas. | 1 | 2 | 3 | 4 | 5 |
| 8. reduce difficulties associated with student transition from school to school. | 1 | 2 | 3 | 4 | 5 |

## QUESTIONS & COMMENTS

*(Attach additional sheets as necessary.)*

Continued on next page

**GOAL AND ACADEMIC STANDARDS COMMENTS**

*Please indicate your opinion about any specific draft goals and academic standards. Academic standards are statements that help interpret a goal.*

| GOAL NUMBER | STANDARD LETTER | IMPORTANT FOR STUDENTS TO KNOW AND BE ABLE TO DO? | | | | | CLEARLY WRITTEN? | | | | | SUGGESTIONS FOR IMPROVEMENT |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | DISAGREE | | NO OPINION | | AGREE | DISAGREE | | NO OPINION | | AGREE | |
| | | 1 | 2 | 3 | 4 | 5 | 1 | 2 | 3 | 4 | 5 | |
| | | 1 | 2 | 3 | 4 | 5 | 1 | 2 | 3 | 4 | 5 | |
| | | 1 | 2 | 3 | 4 | 5 | 1 | 2 | 3 | 4 | 5 | |

**LEARNING BENCHMARK COMMENTS**

*Please indicate your opinion about specific draft learning benchmarks. Learning benchmarks are more detailed statements that help interpret the academic standards. Learning benchmarks have been prepared at five developmental levels: early elementary, late elementary, middle or junior high school, early high school and late high school.*

| GOAL NUMBER | STANDARD LETTER | BENCHMARK NUMBER | UNDERSTANDABLE? | | | | | ACADEMICALLY RIGOROUS? | | | | | ATTAINABLE FOR BENCHMARK LEVEL? | | | | | MEASURABLE? | | | | | SUGGESTIONS FOR IMPROVEMENT |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | DISAGREE | | NO OPINION | | AGREE | DISAGREE | | NO OPINION | | AGREE | DISAGREE | | NO OPINION | | AGREE | DISAGREE | | NO OPINION | | AGREE | |
| | | | 1 | 2 | 3 | 4 | 5 | 1 | 2 | 3 | 4 | 5 | 1 | 2 | 3 | 4 | 5 | 1 | 2 | 3 | 4 | 5 | |
| | | | 1 | 2 | 3 | 4 | 5 | 1 | 2 | 3 | 4 | 5 | 1 | 2 | 3 | 4 | 5 | 1 | 2 | 3 | 4 | 5 | |
| | | | 1 | 2 | 3 | 4 | 5 | 1 | 2 | 3 | 4 | 5 | 1 | 2 | 3 | 4 | 5 | 1 | 2 | 3 | 4 | 5 | |

**RESOURCES NEEDED**

**Please list the services, resources or materials you anticipate needing in order to make the standards and benchmarks effective (attach additional sheets as necessary). Teachers may want to attach examples of student work that meets specific standards.**

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**FEEDBACK**
**INSTRUMENT TWO**

# APPENDIX E

***Questions concerning this feedback instrument may be directed to your Regional Office of Education or the Illinois State Board of Education at 1-800-387-1470 or rschaljo@spr6.isbe.state.il.us***

This instrument is designed specifically for review and comment on the applicability of the goals and academic standards to school improvement. It may be particularly useful for group discussion and response. The teams who worked on the project have asked that you complete this information, attaching additional pages as needed, and return it by November 29, 1996.

*Please duplicate as needed.*

***SEND TO:***
**Academic Standards Project**
**Illinois State Board of Education**
**100 North First Street**
**Springfield, Illinois 62777-0001**

## RESPONDENT INFORMATION

**This response represents the opinion of (check one):**
☐ An individual ☐ A group (if group, how many?) ________

**Geographic Location:**
County ________________ (If Cook, Chicago?) ☐ Yes ☐ No

**Portion(s) of the Document Reviewed by Respondent(s):**
☐ Introduction
☐ English Language Arts
☐ Mathematics
☐ Science
☐ Social Science
☐ Physical Education/Health
☐ Fine Arts
☐ Foreign Languages

**Level(s) of Benchmarks Reviewed:**
☐ Early Elementary
☐ Late Elementary
☐ Middle/Jr. High
☐ Early High School
☐ Late High School

## RESPONDENT AFFILIATION *(Check all that apply.)*

☐ **Parent**
☐ **Community Member**
☐ **Higher Education**
☐ **Corporate or Business Community**
☐ **School Board or Council Member (past or present)**
☐ **Student**
☐ **Other** ________

**Teacher or Other Professional Staff**
☐ Elementary ☐ Middle/Jr. High ☐ High School
☐ Other ______________________________

**Administrator**
☐ School-Level ☐ District-Level ☐ Regional

## FOCUS ON STANDARDS

*Listed below are several questions that are intended to provide focus for individuals or discussion groups. Review and comment are invited for these and other areas of interest or concern. Please provide comments in typewritten form to facilitate analyzing responses. An efficient strategy may be to select only those questions that respondents feel strongly about or those which match their expertise.*

1. **Do the draft Goals, Academic Standards and Learning Benchmarks meet the criteria for standards by**
   a. being clear and understandable to students, parents, educators, business representatives and the community at large?
   b. including an appropriate combination of knowledge and skills, not just facts alone or skills alone?
   c. building upon, but being rigorous enough to go beyond the basics within each of the academic disciplines and at each benchmark?
   d. being specific enough to convey what each student should learn but broad enough to allow for a variety of approaches to teaching, curriculum, course design and assessment?
   e. being specific enough to be used in assessing progress (measurable) and improving students' learning?
2. **Are the draft goals, academic standards and learning benchmarks attainable, too high or too low?**

*Continued on next page*

3. **How could the draft goals, academic standards and learning benchmarks be refined to**
    a. enhance student learning?
    b. become more helpful for educators?
    c. communicate the intended results of schooling to parents, business representatives and the community?
4. **What parts of this draft document are**
    a. most informative?
    b. least informative?
5. **What services, resources or materials do you anticipate students needing in order to make the goals, academic standards and benchmarks useful?**
6. **What services, resources or materials do you anticipate educators needing in order to make the goals, academic standards and benchmarks useful?**
7. **What services, resources or materials do you anticipate the public needing in order to further understand the goals, academic standards and benchmarks?**

## GENERAL COMMENTS

# NOTES

# NOTES

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